

1 UNITED STATES DISTRICT COURT
2 WESTERN DISTRICT OF WASHINGTON AT SEATTLE
3

4 MICROSOFT CORPORATION,)
5 Plaintiff,) C10-01823-JLR
6 v.) SEATTLE, WASHINGTON
7 MOTOROLA INC., et al,) November 14, 2012
8 Defendant.) TRIAL DAY 2
9

10 VERBATIM REPORT OF PROCEEDINGS
11 BEFORE THE HONORABLE JAMES L. ROBERT
12 UNITED STATES DISTRICT JUDGE
13

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15
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17 Wion, David Pritikin, Rick
18 Cederoth, Ellen Robbins and Andy
Culbert

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21 Philip McCune, Kevin Post, Tom
22 Miller and Mark Rowland
23
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1 THE CLERK: C10-1823, Microsoft versus Motorola.
2 Counsel, please make your appearances.

3 MR. HARRIGAN: Good morning, Your Honor. Art
4 Harrigan representing Microsoft. Mr. Pritikin will be
5 examining, or continuing to do so. Rick Cederoth from
6 Sidley; Andy Culbert from Microsoft; Ellen Robbins from
7 Sidley; my partner, Chris Wion. And on the bench we have
8 David Howard from Microsoft and David Killough from
9 Microsoft.

10 MR. JENNER: Good morning, Your Honor. Jesse Jenner
11 from Ropes and Gray; Ralph Palumbo from Summit; Kevin Post
12 from Ropes and Gray; Tom Miller from Motorola; Phil McCune
13 from Summit; Mark Rowland from Ropes and Gray.

14 THE COURT: Mr. Miller, I hope you got them to buy
15 you a nice dinner last night, in exchange for moving up to
16 the front.

17 Judging from the attendance, I see that software still
18 doesn't hold a candle to strip clubs. I understand you've
19 switched a little bit of the order around. So I'm
20 anticipating Sullivan, Ochs, Orchard, Del Castillo, and
21 Gibson, if we get to them. Anything the parties want to take
22 up?

23 MR. JENNER: We do have a bit of the confidential
24 exhibit housekeeping. I don't think it will take long. And
25 we turn it over to our colleagues for that purpose.

1 THE COURT: All right. Mr. Pritikin.

2 MS. ROBBINS: Good morning, Your Honor. Ellen
3 Robbins on behalf of Microsoft. We will be brief. We have
4 conferred overnight. There are a few exhibits that we wanted
5 to mention, some of which have already been subject to your
6 sealed orders, others are ones that may be coming up today,
7 and the parties have agreed they should be provisionally
8 sealed. We will see if and when they're used, how they're
9 used, then the parties will subsequently prepare redacted
10 versions for submission by the next morning.

11 The ones we believe may come up today: 3417, 502, 2238.

12 THE COURT: You need to go more slowly.

13 MS. ROBBINS: 502, 2238, 2370, 2371 and 3094.

14 THE COURT: All right.

15 MS. ROBBINS: We've conferred and we will make
16 arrangements to the extent those are referenced today.

17 Then there are a few additional ones that we believe may
18 be coming up, although we're not sure. Those are 2422, 2689,
19 2576, 2652. Others that may arise that have been subject to
20 the sealed order are 2138, 2353, 2385, 2688 and 2730.

21 Then I believe Mr. Brenner has some additional ones.

22 MR. BRENNER: Your Honor, may I approach?

23 THE COURT: Yes.

24 MR. BRENNER: We have just handed over a list of
25 additional exhibits we ask be provisionally sealed.

1 The final two exhibits on the list, 428 and Exhibit 16,
2 are exhibits we anticipate may be discussed today. The other
3 exhibits are exhibits that I do not believe we anticipate
4 will be discussed today, but we would like to have those
5 provisionally sealed as well. And we have a category on the
6 right explaining which category of confidential information
7 they fall within.

8 One note about Exhibit 428, at the bottom, that is a
9 confidential version of the initial determination from the
10 ITC. It's a 340-page document. I have copies, if you would
11 like them right now. But there's a public redacted version
12 that's been released, we are having that placed on the
13 exhibit list as Exhibit 3419, and we anticipate that the
14 questioning today about that will only come from the public
15 redacted version. We just wanted to bring this to the
16 court's attention at this time.

17 THE COURT: As I understand it, then, there will be
18 no witness today for whom the parties are asking the
19 courtroom be cleared. And we will be dealing with the
20 exhibits on the basis that we've talked about, which is
21 having them not be viewed publicly, that they'll be sealed
22 and then unsealed in some form only if they're relied on by
23 the court.

24 MS. ROBBINS: Your Honor, that is not quite
25 completely true. For Mr. Del Castillo, who will be taking

1 the stand probably after lunch, we probably will need to have
2 the courtroom cleared. There is some future product
3 reference testimony we believe that is going to be coming up
4 in the cross examination. There is one document that may
5 come up on direct examination for which we have already
6 prepared a redacted version that was submitted yesterday.

7 So we will be conferring about how to best do that with
8 Mr. Del Castillo.

9 THE COURT: Then know that I would expect there will
10 be some presentation to the court before he takes the stand,
11 so we have a record of the reason why we're closing the
12 courtroom.

13 MS. ROBBINS: Understood. Lastly, for the record, on
14 Mr. Brenner's list we were both contacted by counsel for
15 third-party Samsung asking that we provisionally seal certain
16 documents. And those were included on Mr. Brenner's list,
17 and I wanted to note that for the record.

18 GARY SULLIVAN

19 Previously being sworn, resumed and testified as follows:

20 DIRECT EXAMINATION (Cont.)

21 BY MR. PRITIKIN:

22 Q Good morning, Dr. Sullivan. When we wound up yesterday
23 afternoon you were telling us about the sequence of events
24 that led to the development of the H.264 standard. And I
25 don't want to backtrack and cover it, but I want to pick up

1 where we left off.

2 I believe you had told us that by the time that VCEG
3 had finished its proposal in the summer of 2001, you had
4 already achieved a 50 percent compression improvement?

5 A Yes, that's correct, approximately a 50 percent
6 compression improvement, overall average, yes.

7 Q Can you explain to the court what you mean by 50 percent
8 compression improvement? What is that?

9 A Well, it means that when we code the video content,
10 although there is a variety of types of video content and
11 different video resolutions, and many applications, overall
12 we would expect to see an average reduction of the amount of
13 data necessary to code the video by 50 percent, as an
14 average. It would vary from video sequence to video
15 sequence, but -- and sometimes could vary substantially. But
16 as an overall average we were cutting in half the number of
17 bits necessary to code the video.

18 Q What does it mean to cut in half the number of bits? Is
19 that to achieve essentially the same quality?

20 A Yes. To achieve the same quality with half the number of
21 bits. Alternatively, you could achieve higher quality with
22 the same number of bits. That's all a matter of how the
23 encoder would be operating.

24 Q Now, how did the improvement you had achieved in this VCEG
25 proposal in the summer of 2001, how did that compare with the

1 first version of H.264 that was finally released?

2 A By that time, mid-2001, it was very similar in compression
3 capability to the final standard.

4 Q And had Motorola made any proposals that were part of that
5 VCEG standard?

6 A No.

7 Q Let's go back to 424-A, and I believe we had just gotten
8 into that when we adjourned yesterday. And I think you told
9 us the different curves represented different versions of the
10 standard en route to the final version?

11 A Yes.

12 Q Now, what is the last TML version shown? What number is
13 that?

14 A That is TML-9.

15 Q Is that the last version of the VCEG before the JVT?

16 A Yes.

17 Q Would it be possible to put yellow on the TML-9 graph?

18 And what is JM6.1?

19 A That is approximately the final standard. That's the
20 final joint model from the joint video team.

21 Q And let's highlight that as well. And what does this
22 graph tell you about the compression improvement that had
23 been achieved by VCEG, and how that compared with what was in
24 the final H.264?

25 A Well, overall the vast majority of the improvement that

1 had been shown relative to the prior standards had already
2 been achieved by the time the project became a joint project.

3 Q Now, to your knowledge, did Motorola make any proposal
4 that was included in TML-9?

5 A No, they did not.

6 Q Could you take a look at Exhibit 2271 in the witness
7 binder? And is this a submission made to MPEG in July of
8 2001, by Motorola?

9 A Yes, it is.

10 Q And did you characterize documents of this sort as
11 contribution documents?

12 A Yes. Essentially any document submitted we would refer to
13 as a contribution.

14 Q Does this document contain any proposals to the standard?

15 A No, it does not.

16 Q What does it contain?

17 A It contains a study of the work that had been happening in
18 the VCEG organization, a report of the compression
19 performance.

20 Q Are you aware of any other documents submitted by Motorola
21 prior to the formation of the JVT?

22 A Not relative to this project, no.

23 Q At some point after the formation of the JVT, was a
24 decision made to support some special features for interlaced
25 video?

1 A Yes.

2 Q Was Motorola one of the companies that was pushing for
3 inclusion of some interlaced coding features?

4 A Yes, it was.

5 Q Did Motorola make any proposals to the JVT?

6 A Yes, they did.

7 Q And in what areas were Motorola's proposals?

8 A In the area of special coding features for interlaced
9 video content.

10 Q Now, were some of the Motorola contributions related to an
11 interlaced coding tool referred to as MBAFF?

12 A Yes.

13 Q Was MBAFF in prior video standards?

14 A Yes. MBAFF was also in the MPEG-2 standard.

15 Q And was it in the MPEG-4 initial standard?

16 A Yes, I believe it was.

17 Q To your knowledge, did Motorola originate the use of
18 MBAFF?

19 A No, they did not.

20 Q What did you consider at the time to be the next best
21 alternative to the type of MBAFF that was used in H.264?

22 A Well, the type of MBAFF used in H.264 is essentially the
23 same, it's very similar to what was used in MPEG-2. It's
24 essentially just copying the frame/field switching capability
25 from one standard into the next generation design.

1 Q Was there the use of paired macroblocks in H.264?

2 A Yes. In H.264 it used paired macroblocks.

3 Q Were some of the Motorola contributions related to an
4 interlaced coding tool referred to as PICAFF, P-I-C-A-F-F?

5 A Yes.

6 Q And was PICAFF in prior video standards?

7 A Yes.

8 Q Which ones?

9 A Well, in particular it was in MPEG-2, the previous most
10 dominant standard.

11 Q To your knowledge, did Motorola originate the use of
12 PICAFF for interlaced video?

13 A No, they did not.

14 Q Was there any difference in the type of PICAFF in H.264 as
15 compared with PICAFF in the prior standards?

16 A No, there was no significant difference.

17 Q Now, Dr. Sullivan, before we wind up, I have one last
18 topic I want to turn to. I want to ask you about an e-mail
19 that you wrote in 2005, and that Motorola quoted extensively
20 in its trial brief in this case. Would you turn, please, to
21 Exhibit 2345. And does this contain some e-mails back and
22 forth between you and Patty Gray, who worked for a company
23 called eTreppid?

24 A Yes, it does.

25 Q How did you happen to send an e-mail to Ms. Gray?

1 A Ms. Gray sent an inquiry to me. She was concerned about
2 the policies of intellectual property handling in the
3 international standards organizations. She was confused
4 between the relationship of the standards organization and
5 the formation of patent pools.

6 Q Did she think that if you participated in the standards
7 organization, you'd then have to join a pool?

8 A That seemed to be what she thought, yes.

9 Q Now, by the way, have you ever been involved in patent
10 licensing?

11 A No, I have never personally participated in the licensing
12 negotiation.

13 Q And have you ever had any responsibilities relating to the
14 organization or the operation of a patent pool?

15 A No, I have not.

16 Q Now, you wrote back to her. And looking back at
17 Exhibit 2345, you said that she should not mix up the notion
18 of patent pools and open standards organizations. What did
19 you mean by that?

20 A Well, I meant that a patent pool is, at least in terms of
21 the standards in which I have been involved, a patent pool
22 formation is something that happens outside of the standards
23 body and is not connected to the standardization activity.

24 Q Is it your understanding that a contributor to a standard
25 has to join a patent pool?

1 A No, certainly not.

2 Q If they don't, is it your understanding that they still
3 have to offer their patents on RAND terms?

4 A Yes. Any contributor to the standard, participants in the
5 process, needs to offer their patents under RAND terms.

6 Q Now, in the e-mail you use some colorful language, and you
7 wrote, I'm going to quote it, "It is certainly acceptable for
8 you to charge more for your fundamentally important IPR than
9 what some other Bozo charges for their minor patented tweak.
10 And I believe you are the one in control of deciding whether
11 your IPR is in the fundamentally-important category or in the
12 Bozo-tweak category." What did you mean by that, Dr.
13 Sullivan?

14 A Well, I meant that the patentholders, within the bounds of
15 the RAND commitment of the standardization organization, the
16 patentholders were not bound by a particular rule of how much
17 they would charge, for example, for a patent license.

18 Q What did you mean by a "Bozo-tweak category"?

19 A I meant a very minor aspect of a design.

20 Q As distinguished from "fundamentally-important category"?

21 A Yes.

22 Q Now, in the course of your chairing the JVT, did you
23 review the various Motorola proposals?

24 A Yes, I did.

25 Q And were you familiar with them?

1 A Yes, I was.

2 Q And did Motorola contribute anything that you considered
3 to be fundamentally important IPR?

4 A No, I believe they did not.

5 MR. PRITIKIN: No further questions, Your Honor.

6 THE COURT: Thank you.

7 CROSS EXAMINATION

8 BY MR. ROWLAND:

9 Q Good morning, Dr. Sullivan. Mark Rowland. You may recall
10 we met during the deposition.

11 A Yes.

12 Q I'd like to go back to one of the exhibits that you were
13 talking about earlier, and that's the July 2001 contribution
14 to MPEG by Motorola. I believe that was marked as
15 Exhibit 2271. Do you recall testifying about that just a few
16 minutes ago?

17 A Yes.

18 Q In this contribution Motorola reported to MPEG the results
19 of testing it had done comparing MPEG-4, which was a prior
20 standard, to the draft standard H.26L that VCEG had been
21 working on?

22 A Yes.

23 Q And their experiments showed that for H.26L the
24 performance was a little worse than for MPEG-4, and they
25 attributed this to a lack of interlaced coding tools in

1 H.26L.

2 THE COURT: Was that a question, counsel?

3 MR. ROWLAND: Yes. Let me try that again.

4 Q Isn't it true that their experiments showed that, at least
5 in some cases for H.26L, the performance was a little worse
6 than for MPEG-4?

7 A Yes. That's what they reported in some cases.

8 Q In some cases. And they attributed that to the lack of
9 interlaced coding tools in H.26L, right?

10 A Yes, that's correct.

11 Q And if we turn to figure 16 on the last page of the
12 exhibit, you see there is an example of the kind of chart you
13 were showing us before, which measures performance.

14 A Yes.

15 Q And in this chart on Figure 16 they're comparing the
16 performance of MPEG-4, for a particular sequence, to the
17 H.26L standard, right?

18 A To some configuration, a UVLC configuration, yes.

19 Q Okay. In this particular illustration, the line on the
20 bottom is a version of MPEG-4 that does not have interlaced
21 coding tools in it, right?

22 A Yes.

23 Q And the line on the top, the dotted line on the top is the
24 MPEG-4, the performance of MPEG-4 with interlaced coding
25 tools in it?

1 A Yes.

2 Q And it shows a substantial improvement between the two,
3 right?

4 A That is what is shown, yes.

5 Q And in the middle is the H.26L performance, correct?

6 A The UVLC configuration of H.26L is what they are reporting
7 here.

8 Q That's what's shown in the middle?

9 A Yes.

10 Q Okay. And so what they're illustrating here is in this
11 particular set of circumstances the interlaced coding tools
12 of MPEG-4 have provided better performance than the
13 configuration of H.26L that they were using?

14 A In this range of bit rates, on this particular test
15 sequence, for that configuration of H.26L, yes.

16 Q Okay. And if you turn to the prior figure, Figure 15,
17 here they're showing another comparison using MPEG-4 with and
18 without interlaced coding tools and H.26L, right?

19 A Yes.

20 Q And, again, you can see a substantial improvement in
21 MPEG-4 resulting from the inclusion of the interlaced coding
22 tools, correct?

23 A That is what is reported here for this test sequence.

24 Q For this particular --

25 A At this range of fidelity. It looks like it's a

1 relatively low range of fidelity they're testing.

2 Q For this particular sequence, the H.26L is performing
3 about the same as the MPEG-4 with interlaced coding tools,
4 right?

5 A In this UVLC configuration, that seems to be what they are
6 reporting, yes.

7 Q Okay.

8 MR. ROWLAND: Motorola offers Exhibit 2271.

9 THE COURT: Any objection?

10 MR. PRITIKIN: No objection.

11 THE COURT: It is admitted.

12 (Exhibit No. 2271 was admitted into evidence.)

13 Q I believe it was your testimony that Motorola proposed
14 interlaced coding tools for H.264, correct?

15 A Yes.

16 Q And they first made such a proposal in December of 2001?

17 A Yes.

18 Q As the standard, that is, the H.264 standard, was
19 released, it had multiple profiles, correct?

20 A Yes, that's correct.

21 Q And those profiles, at least in the initial release in
22 2003, included baseline, main, and main?

23 A The first version had baseline, main and extended.

24 Q And extended. And tools for interlaced video content were
25 included in the main profile, right?

1 A Yes, that's correct.

2 Q And in 2004, or thereabouts, the standard was extended to
3 include a high profile; is that right?

4 A Yes, that's correct.

5 Q That's for applications with high resolution video?

6 A No. All of the profiles applied to all resolutions of
7 video.

8 Q Okay. The high profile also included tools for interlaced
9 video content, right?

10 A Yes, that's correct.

11 Q In around 2009 or 2010, the H.264 standard was extended,
12 again, this time to include something called stereo high
13 profile?

14 A Yes, that's correct.

15 Q And the stereo high profile includes interlaced coding
16 tools, correct?

17 A Yes, that's correct.

18 Q Would you turn to Exhibit 3398?

19 A Yes.

20 Q Exhibit 3398 is a paper that you authored?

21 A Yes, it is.

22 Q And this was published in an industry journal?

23 A It was published at a conference.

24 Q At a conference, okay. That was a conference relating to
25 image processing?

1 A Yes.

2 Q Now, in this paper you were describing, among other
3 things, the stereo high profile, correct?

4 A Yes, that's correct.

5 Q And if we turn to section 2.4, which is on the third page
6 of the exhibit, that's one that bears Bates numbers ending in
7 350 -- somebody described it the other day as "lawyer
8 numbers" -- on the lower right-hand corner there's a
9 discussion of the stereo high profile, correct?

10 A Yes.

11 Q And in the beginning of the discussion you refer to
12 another extension, the multiview high profile. Do you see
13 that in the first paragraph?

14 A Yes.

15 Q You say, "One key restriction imposed in the design of the
16 multiview high profile was that the pictures could not be
17 coded, as individual fields were using macroblock-adaptive
18 frame/field coding. These features typically referred to as
19 interlaced coding tools were supported in the ordinary and
20 widely deployed H.264/11496-10 high profile, but they were
21 not supported in the multiview high profile." Right?

22 A Yes. Although it was 14496-10.

23 Q Sorry, I might have misspoke. But that was your general
24 understanding at the time, correct?

25 A Yes. Although I might slightly qualify the part about

1 could not be coded as individual fields. I think what I
2 meant there was that it did not have picture-level
3 frame/field adaptivity. I think that would be a more
4 accurate way to say what I trying to say in that sentence.

5 Q That's the PICAFF or PAFF feature?

6 A Yes.

7 Q In the next paragraph you say, "Soon after the development
8 of the multiview high profile, industry requests were
9 received for an additional profile target specifically for
10 stereo video applications and supporting the interlaced
11 coding tools." Is that, in fact, what happened?

12 A Yes.

13 Q And you say, "The result is now referred to as the stereo
14 high profile, and it is expected to complete the final
15 standardization process, as an extension of H.264/14496-10,
16 in late 2009 or early 2010." Right?

17 A Yes.

18 Q And that, in fact, happened, that it was completed, that
19 the stereo high profile completed the final standardization
20 process as an extension of the standard?

21 A Yes, that's correct.

22 MR. ROWLAND: Motorola offers Exhibit 3398.

23 MR. PRITIKIN: No objection.

24 THE COURT: 3398 is admitted.

25 (Exhibit No. 3398 was admitted into evidence.)

1 Q Microsoft also added interlaced coding tools to a video
2 codec design it was developing as an alternative to H.264,
3 correct?

4 A Yes, I think that's essentially correct.

5 Q Microsoft's video codec was called the Windows Media Video
6 or WMV?

7 A Yes, or VC-9, as a standard.

8 Q Okay. So initially it was developed by Microsoft, and
9 Microsoft included interlaced coding tools in at least some
10 versions of the WMV codec, right?

11 A Yes. The earlier versions did not have that. But a later
12 version did add that in one profile, I believe.

13 Q Okay. That was -- the WMV was added into WMV-9?

14 A I think it's best described as being in VC-1. The WMV-9,
15 as it was deployed before the VC-1 version, I believe did not
16 have that. Although I think there's a bit of confusion about
17 whether that last version is called WMV-9 or not.

18 Q There was a version called VA?

19 A Yes. That's the way I referred to it, VA.

20 Q And that's the version, that version at least you know
21 included interlaced coding tools, right?

22 A Yes.

23 Q And then that version, or at least a version of the
24 Microsoft codec was submitted for standardization and
25 ultimately became the standard you're referring to as VC-1,

1 right?

2 A Yes.

3 Q Okay. And VC-1, as it was standardized, included
4 interlaced coding tools, right?

5 A In one profile, yes.

6 Q The main goal in developing VC-1 standardization was to
7 support the compression of interlaced content without first
8 converting it to progressive content, correct?

9 A I don't know that that was the main goal of developing the
10 standard. No, I don't think so.

11 Q May I direct your attention to Exhibit 3381. This is a
12 printout from Microsoft's website. You see at the top it
13 refers to VC-1?

14 A Yes.

15 Q And this is from, as you can see the path, it's from a
16 section of the website relating to Direct X VA, correct?

17 A Yes.

18 Q And that's something you know about, Direct X VA, right?

19 A Yes.

20 Q And in the description of VC-1 provided in the paragraph,
21 it says in the middle, "The main goal of VC-1 development and
22 standardization is to support the compression of interlaced
23 content without first converting the content to progressive."
24 This is what Microsoft was representing on its website,
25 correct?

1 A That's a correct reading of the sentence, yes.

2 Q And then goes on to say, "This support makes VC-1 more
3 attractive to broadcast and video industry professionals."
4 Do you see that?

5 A The words do appear there.

6 Q So Microsoft made these representations on its website.
7 And that's in Exhibit 3381?

8 MR. ROWLAND: Motorola moves to offer this for
9 admission.

10 MR. PRITIKIN: No objection.

11 THE COURT: 3381 is admitted.

12 (Exhibit No. 3381 was admitted into evidence.)

13 Q Now, I'd like to take a look at some of the papers that
14 you've authored. We already looked at one. There was some
15 others that you also authored, or co-authored, with respect
16 to H.264, right? You've offered a series of papers or
17 co-authored a series of papers in regard to H.264, right?

18 A Yes.

19 Q And during your testimony you already looked at one of
20 those, Exhibit 424?

21 A Yes.

22 Q Okay. And if you turn to that, I'd like you to look at
23 page 566 of Exhibit 424.

24 A Page 566?

25 Q It's 566 of the paper.

1 A Yes.

2 Q It also has numbers at the lower right corner, the last
3 three digits of 712.

4 A Yes.

5 Q And there's a section there, adaptive frame/field coding
6 operation, on the right-hand column, second half. Do you see
7 that?

8 A Yes.

9 Q And it continues, that discussion continues on to the next
10 page and a half, right?

11 A Yes. Although a significant chunk of it is taken up by an
12 irrelevant figure.

13 Q In this section you're explaining that the H.264 design
14 provides for high coding efficiency by allowing an encoder to
15 pick among different ways of encoding an interlaced frame,
16 right?

17 A Can you repeat the question?

18 Q In this section you and your co-authors are explaining
19 that the H.264 design provides for high coding efficiency by
20 allowing an encoder to pick among different ways of encoding
21 an interlaced frame?

22 A Yes.

23 Q An interlaced frame has two fields?

24 A Yes.

25 Q And one thing the encoder can do, as described here, is

1 combine the two fields of the interlaced frame together and
2 code them as one frame, right?

3 A Yes.

4 Q That's frame mode?

5 A Yes.

6 Q Okay. Another thing the encoder can do is encode the two
7 fields of the frame separately, right?

8 A Yes.

9 Q And that's field mode?

10 A Yes.

11 Q As an aside, can an H.264 encoder code a progressive frame
12 as two separate fields?

13 A The standard does not -- whether the video is interlaced
14 or progressive is outside the scope of the standard. The
15 standard generally doesn't talk about whether the video is
16 interlaced or progressive.

17 Q So within the scope of the standard, an encoder could code
18 a progressive frame as two separate things?

19 A Yes. I think that's hypothetically possible.

20 Q So someone could take a progressively captured video and
21 code it in field mode in accordance with the standard?

22 A In the profiles that have the field coding feature, yes.

23 Q Let's go back to the paper. It describes a third option,
24 which is to combine two fields together into a frame. But
25 when coding, the frame is split in pairs of vertically

1 adjacent macroblocks into pairs of either field or frame
2 coded macroblocks, right?

3 A Yes.

4 Q And this macroblock pair-adaptive frame/field coding is
5 referred to as MBAFF?

6 A Yes.

7 Q And the first two options, the choice between the first
8 two options is referred to as picture-adaptive frame/field or
9 PAFF coding, right?

10 A Yes.

11 Q Now, in this paper it reports that PAFF coding reduced bit
12 rates by 16 to 20 percent in some instances over frame mode,
13 correct?

14 A It says that that was reported on a couple of example
15 sequences.

16 Q So that was reported during the development of the
17 standard by JVT?

18 A Yes.

19 Q And as you previously testified, reducing bit rates is a
20 good thing?

21 A Yes.

22 Q Okay. It's also reported that MBAFF reduced bit rates in
23 the range of 14 to 16 percent over PAFF in some instances,
24 right?

25 A Yes, on a couple of example sequences, that is -- again,

1 it says that that was reported.

2 Q That was reported in connection with the development of
3 the H.264 standard?

4 A I believe so, yes.

5 Q Okay. Good. Earlier you were testifying about a graph
6 that appears in this exhibit, I believe it's Figure 18. It
7 was a blowup of it -- at least part of it. That was 424,
8 exhibit marked as 424-A.

9 A Yes.

10 Q And Figure 18 does not show performance for interlaced
11 video, correct?

12 A That's correct.

13 Q So this is showing performance for sequences called QCIF
14 and CIF, in Figure 18?

15 A Yes, that's correct.

16 Q These are not high definition videos, right?

17 A That's correct.

18 Q There's some resolution that's lower than standard
19 definition?

20 A Yes.

21 Q About a quarter of the -- CIF is about a quarter of the
22 resolution of standard definition?

23 A Yes.

24 Q And QCIF is yet a further reduction in resolution, right?

25 A Yes, that's correct.

1 Q Okay. And if I recall correctly, what you were -- one of
2 the things you showed us, even at these very low resolutions,
3 the graph in Figure 18 shows there was at least some
4 improvement in performance occurring after the JVT was
5 brought in, right?

6 A Yes, I believe there is a little bit of improvement shown
7 in these figures there, yes.

8 Q Let's look at another paper which appears at Exhibit 571
9 in your binder.

10 A Which binder is that in?

11 Q It's a black binder. The binder you were handed this
12 morning.

13 A I'm sorry, I don't see 571.

14 Q I'm sorry, I'm told I misspoke. 575?

15 A Okay. Yes.

16 Q Okay. So 575 is a paper entitled, "Video Compression From
17 Concepts to the H.264/AVC Standard," correct?

18 A Yes.

19 Q This is a paper you authored, or at least co-authored?

20 A Yes, that's correct.

21 Q And this was a paper that was published in an industry
22 journal?

23 A Yes.

24 Q This is about 2005?

25 A Yes.

1 Q On page 27 of the article, which also has at the lower
2 right-hand corner several lawyers numbers, the lowest of
3 which is the last three digits, 886. Do you see that?

4 A Yes.

5 Q Starting midway down on the left-hand column there's a
6 discussion of adaptive frame/field coding operation, right?

7 A Yes.

8 Q And this discussion says that interlaced frames often show
9 different statistical properties than progressive frames?

10 A Yes.

11 Q You see that at the very beginning of the discussion? You
12 agree with that?

13 A Yes.

14 Q And the paper then contains a similar explanation of PAFF
15 and MBAFF as we were looking at before in Exhibit 424?

16 A Yes.

17 MR. ROWLAND: Motorola offers Exhibit 575.

18 MR. PRITIKIN: No objection.

19 THE COURT: It is admitted.

20 (Exhibit No. 575 was admitted into evidence.)

21 Q Let's take another -- let's take a look at another paper,
22 Exhibit 574. This is a report that you were a co-author of?

23 A Yes, it's a magazine article.

24 Q A magazine article. And this was published around 2006?

25 A Yes.

1 Q And in this article on the first page in the second column
2 it says that -- in the second paragraph it says, "This
3 article focuses on a few representative features of the core
4 coding technology of H.264." Right?

5 A Yes.

6 Q Okay. And if we turn a couple pages in to page 136 of the
7 magazine, we see on the right-hand side a section entitled,
8 "Main innovative features of the video coding layer." Do you
9 see that?

10 A Yes.

11 Q Then on the following page, 137, there's a discussion of,
12 about midway down there's a discussion about MBAFF. Do you
13 see that?

14 A Yes.

15 Q Okay.

16 MR. ROWLAND: Motorola offers Exhibit 574.

17 MR. PRITIKIN: No objection.

18 THE COURT: 574 is admitted.

19 (Exhibit No. 574 was admitted into evidence.)

20 Q Let's look at one more paper. This is Exhibit 3399. Do
21 you have that in front of you?

22 A Yes, I do.

23 Q Okay. Good. This is an article entitled, "The
24 H.264/MPEG-4 AVC Video Coding Standard and Its Deployment
25 Status." This was authored by you, correct?

1 A Yes, it was.

2 Q This was published in an industry journal?

3 A This was a conference paper.

4 Q And in this article on page 362 it has -- I'm referring to
5 the numbers on the lower right-hand corner, the last three
6 digits of the Bates number. There's a section entitled,
7 "Patent Licensing." Do you see that?

8 A Yes.

9 Q And in this section you discuss patent licensing, correct?

10 A Yes.

11 Q And you also discuss patent pools, correct?

12 A Yes.

13 Q You acknowledge in this article that patentholders are not
14 forced to offer licenses through such pools?

15 A Yes.

16 Q And toward the bottom of the second paragraph of the
17 section you state, "The licensing issues surrounding the
18 specification may take awhile to be completely settled,
19 (perhaps about 20 years may be a good estimate), and some
20 dissatisfaction has been expressed with the licensing terms
21 announced by these organizations (primarily centered around
22 aspects sometimes called usage fees, as contrasted with fees
23 associated with the quantity of decoding and encoding product
24 units)." Do you see that?

25 A Yes.

1 Q At the time you wrote that, you thought that it might take
2 upwards of 20 years for licensing issues to be settled
3 relating to the H.264 standard, right?

4 A Well, I was being facetious there knowing that the
5 lifetime of a patent is about 20 years. I was joking that
6 once the patents have all expired, then probably it would be
7 no longer an issue.

8 Q But you were anticipating that licensing issues could take
9 awhile to resolve?

10 A Yes.

11 Q Okay. In the last sentence you said, "However, the
12 licensing issues do not seem to be a major hindrance to the
13 widespread deployment of the standard as the deployment
14 efforts seem to have developed a strong momentum." That was
15 your understanding at the time, correct?

16 A Yes.

17 Q In the next section of the paper you discussed the
18 deployments that had occurred as of the time you wrote this
19 paper?

20 A Yes.

21 Q And in that section you note that the standard had been
22 approved or deployed by BskyB, DirecTV, DVB, HD DVD, and
23 Blu-ray, correct, among others?

24 A Can you point me to where --

25 Q On the next page --

1 A Yes.

2 Q You go through categories of different deployments?

3 A Yes.

4 Q And then the first category, for example, under direct
5 broadcast satellite television, you say, "Announcement
6 include adoptions by the following." One of them is BskyB?

7 A Yes.

8 Q Then you also note that the digital video broadcast,
9 DVB -- this is in the next section -- organization approved
10 the use of the new standards for broadcast television, right?

11 A Yes.

12 Q Likewise, you go on to talk about disk storage formats,
13 including Blu-ray?

14 A Yes.

15 Q And Blu-ray had announced support for it, correct?

16 A Yes.

17 MR. ROWLAND: Your Honor, we offer Exhibit 3399.

18 MR. PRITIKIN: No objection.

19 THE COURT: It is admitted.

20 (Exhibit No. 3399 was admitted into evidence.)

21 Q Let me return to DirectX Video Acceleration, Dr. Sullivan.
22 That's something that you were involved in at Microsoft?

23 A Yes, that's correct.

24 Q Okay. And DirectX is a way to use hardware-based
25 acceleration for video playback on Windows PCs?

1 A DirectX Video Acceleration is, yes.

2 Q Okay. And would you look at Exhibit 591. Do you see
3 that?

4 A Yes.

5 Q And this was a specification that you authored?

6 A Yes.

7 Q And this is a specification for DirectX Video Acceleration
8 for H.264?

9 A Yes.

10 Q This document specifies how a software decoder
11 communicates with the graphics hardware in a PC to decode
12 H.264 encoded video content?

13 A Yes.

14 Q One of the functions of this document was to provide the
15 specifications for hardware manufacturers of what they need
16 to do to support H.264 decoding in a Windows PC?

17 A Within the DirectX VA context, yes.

18 Q Okay. And the way DirectX Video Acceleration operates is
19 that it will do some decoding operations, and others are
20 implemented by a software decoder?

21 A Yes.

22 Q And the DirectX Video Acceleration specification that you
23 wrote provides support for decoding MBAFF and decoded video?

24 A Yes.

25 MR. ROWLAND: Motorola offers Exhibit No. 591.

1 MR. PRITIKIN: No objection.

2 THE COURT: 591 is admitted.

3 (Exhibit No. 591 was admitted into evidence.)

4 Q Now, I'd like to turn back to the e-mail that you were
5 discussing on direct examination by Mr. Pritikin. And that's
6 Exhibit 2345.

7 A Okay.

8 Q So in the document that's marked as Exhibit 2345, the
9 e-mail -- it's actually an e-mail chain. And it's saved in
10 reverse chronological order. We have to start at the back to
11 see how it began, right?

12 A Yes.

13 Q And the e-mail chain began with you writing an e-mail to a
14 woman named Patty, inviting her company to talk at a workshop
15 you were organizing relating to video coding?

16 A Yes, that's correct.

17 Q And at some point in your correspondence with Patty she
18 expressed concern about patent pools not being equitable,
19 isn't that right?

20 A I don't know if she would have used those words, "Not
21 being equitable." Yes, it looks like she says her company
22 has a problem engaging with open standards. The problem is
23 that the patent pool that gets constructed isn't necessarily
24 equitable to a company that may have more significant IP than
25 another. That's what she says.

1 Q Okay. And you responded to her concerns, correct?

2 A Yes.

3 Q And your response is what appears on the first page of the
4 exhibit in the section that is below where you were just
5 quoting from. That is, the middle of the exhibit on the
6 first page has a section that has a "plus" sign and a
7 "greater than" sign next to some text. That's the text from
8 the e-mail from Patty, right?

9 A Yes.

10 Q And then your response is above and below her e-mail on
11 the first page?

12 A Yes.

13 Q Okay. And in the discussion below her e-mail, you
14 provided your view on patent pools and open standards
15 organizations, correct?

16 A Yes.

17 Q And first you expressed the view that patent pools and
18 open standards organizations have nothing to do with each
19 other?

20 A Yes.

21 Q And then, as you explained in the next paragraph, that
22 open standards organizations have no opinion whatsoever on
23 specific licensing terms and they do not force anyone to join
24 any pool, right?

25 A Yes. I would like, though, to point out that at the

1 beginning of this whole message one of the first things I
2 said was that I'm not a lawyer and she shouldn't rely on me
3 for legal analysis. But I said something like that, yes.

4 Q At the time you wrote this e-mail, this was in 2005, you
5 had been involved with standards organizations for at least a
6 decade?

7 A Yes.

8 Q And in the next paragraph, that is the last one on the
9 front page, you state, "The only constraint imposed by the
10 ITU, ISO or IEC is that each patentholder must be willing to
11 allow their technology to be in the standard and must make a
12 licensing opportunity available on a worldwide basis under
13 reasonable and non-discriminatory terms." Do you see that?

14 A Yes, I see that.

15 Q Okay. And that is what the rest of this paragraph was
16 discussing, right?

17 A Yes.

18 Q And at the end of the paragraph you say, "Having
19 technology written into a standard is intended only to
20 provide the assurance that proper licenses will be available
21 to anyone who wants to implement the spec badly enough, not
22 to guarantee it to be cheap." Right?

23 A That's what it says, yes.

24 Q So you were explaining to Patty that even if technology of
25 her company was included in the standard, the RAND

1 requirement did not mean that they were going to have to
2 license it cheaply?

3 A Basically, yes.

4 Q And then you went on to say, "It is certainly acceptable
5 for you to charge more for your fundamentally important IPR
6 than what some other Bozo charges for their minor patented
7 tweak." And this is the colorful language that Mr. Pritikin
8 was asking you about earlier, right?

9 A Yes.

10 Q And you went on to say that, "I believe you are the one in
11 control of deciding whether your IPR is in the
12 fundamentally-important category or in the Bozo-tweak
13 category," correct?

14 A That's what it says.

15 Q That's what you were saying?

16 A I'd like to, though, again point out my introductory
17 remarks about not being a lawyer and that the standardization
18 organizations only, as far as I know, have a RAND licensing
19 requirement. I personally have not participated in patent
20 licensing negotiations as business deals.

21 THE COURT: Mr. Sullivan, your "Bozo-tweak" has
22 changed my entire stereotype of software engineers.

23 MR. ROWLAND: Your Honor, Motorola offers
24 Exhibit 2345.

25 MR. PRITIKIN: No objection.

1 THE COURT: It is admitted.

2 (Exhibit No. 2345 was admitted into evidence.)

3 Q Dr. Sullivan, during your testimony yesterday you referred
4 to a thesis that you had written.

5 A Yes.

6 Q And this was a thesis that you had written in August or
7 September of 1991, somewhere around there?

8 A Yes.

9 Q And you handed out some copies of it?

10 A Yes.

11 Q Okay. That exhibit is -- that thesis is Exhibit 618,
12 correct?

13 A Yes.

14 Q The exhibit that we have in front of us doesn't indicate
15 that the thesis was available in the UCLA library by
16 October 24, 1991, correct?

17 A No, I don't think it says that.

18 Q Okay. And it doesn't indicate that it was indexed
19 anywhere, correct, as of October 24, 1991?

20 A I don't know that I've seen the thesis since I turned it
21 in, so I don't know exactly what UCLA would have put on its
22 preamble material.

23 But I do not see anything like that stated here.

24 Q And you're not aware that it was, in fact, publicly
25 available in the library or through some index by October 24,

1 1991?

2 A I am not aware precisely of what they did. I turned it in
3 to the library one of the last days of August or very early
4 in September.

5 I also, within the first week of September, had given out
6 20 or so copies to various research colleagues and friends.
7 But the precise handling of the library I'm not familiar
8 with.

9 Q The paper includes some references to publications dated
10 in May of 1992.

11 A Can you help me find what you're referring to?

12 Q Sure. Let me see if I can give you an example.

13 If you look on page, it has a Bates number 946 at the
14 end, it's also Roman numeral 14. If you look at the bottom
15 there's a reference to a paper, May of 1992.

16 A Yes. I guess that's when the conference was going to be.
17 I had -- presumably I had submitted a manuscript for that
18 conference before publishing the thesis.

19 Q Okay. So it may be that you included dates in here from
20 May of 1992 in anticipation that things would be publicly
21 available at a later date?

22 A Yes, I'm sure that's what has happened here.

23 Q All right. Let's move on to another topic and that is
24 patents. Yesterday you testified that contributions to the
25 H.26L standard being developed by VCEG or made by companies

1 such as Telenor, HHI, and Nokia, right?

2 A Yes.

3 Q And you don't know how much of any of these contributions
4 may have included technology covered by a patent?

5 A My understanding is that Telenor does not have any
6 technology covered by a patent in the standard. I believe
7 they submitted a document saying that they had not patented
8 their contributions to the standard.

9 Q You don't know whether anything that they contributed may
10 have included technology covered by a Motorola patent?

11 A No, I do not have -- well, I have some familiarity at this
12 point with some Motorola patents. I'm not sure exactly what
13 you're asking me.

14 Q Okay. As part of your role as chairman or rapporteur, it
15 wasn't -- it was not part of your role as chairman or
16 rapporteur to determine whether anyone's contribution
17 included technology that was covered by someone else's
18 patents?

19 A Participants were told to report patents that they were
20 aware of. If they were aware that there were patent rights
21 that applied to technology that was being proposed for
22 standardization, participants were asked to make reports, and
23 the companies that might hold those patent rights were asked
24 to file patent rights declarations.

25 I don't remember specifically whether Motorola or when

1 Motorola would have filed a patent rights declaration with
2 the standards bodies, or whether others reported on Motorola
3 patent rights during the process.

4 Q But it wasn't your role, as chairman or rapporteur, to
5 actually evaluate whether a contribution was covered by a
6 particular patent?

7 A No. Not unless somehow we got into a situation where
8 patent rights would not be available under RAND licensing
9 terms. If we received an indication that patent rights on
10 something in the standard would not be available under RAND
11 terms, we would have to remove that technology from the draft
12 standard. We never got into that kind of a situation. We
13 never had a situation where there was an indication that
14 there would not be RAND-licensable technology. Beyond that,
15 and ensuring that patent rights status in general was
16 reported properly to the committee under the ITU and ISO and
17 IEC policies, I think that's more or less all that I viewed
18 my obligation as being.

19 Q Okay.

20 A I did not analyze any particular patents in relation to
21 the standard, as chairman.

22 Q Thank you.

23 Now, I'd like to ask you a couple questions about the
24 standard itself. There are some sections in it that are
25 labeled as informative, is that right?

1 A Yes.

2 Q And those sections are not expressing a requirement of the
3 standard, rather they're just providing information, correct?

4 A Officially speaking, yes. Formally speaking, that's
5 correct.

6 Q An example of a section of the standard that's labeled as
7 informative is Annex Section B.3, is that correct?

8 A I don't recall specifically. If you have a copy of the
9 standard, I'll be happy to --

10 MR. ROWLAND: Your Honor, may I approach?

11 A -- double check that.

12 So in response to your question, in this copy, which
13 appears to be a March 2010 edition of the standard, Section
14 B.3 is marked as "informative".

15 Q The copy I've given you, just for the record, is
16 Exhibit 421.

17 A Yes.

18 MR. ROWLAND: Motorola offers Exhibit 421.

19 MR. PRITIKIN: No objection.

20 THE COURT: Exhibit 421 is admitted.

21 (Exhibit No. 421 was admitted into evidence.)

22 Q There's some other questions I have about the standard, so
23 if you's keep that in front of you for reference.

24 Supplemental enhancement information, or SEI, is something
25 that's discussed in the standard, right?

1 A Yes.

2 Q And that's information that can be included in a
3 bitstream?

4 A Yes.

5 Q But a decoder is not necessarily required to use that
6 information?

7 A Formally speaking, I think that's correct, for most SEI
8 data.

9 Q Okay. An example is that a decoder is not required to use
10 picture timing SEI messages?

11 A That one has sort of a special status. I believe in
12 Annex C there's some remarks about the picture timing SEI
13 messages and their relationship to timing conformance to the
14 standard.

15 Q These type of messages are not required to be included in
16 a bitstream, correct?

17 A Those messages, picture timing information messages, if
18 you just give me a moment here I can try to find the
19 information that I'm looking for. Yes. Here is the
20 paragraph that I was looking for, on page 308, at the
21 beginning of Annex C, it says, "All sequence parameter sets
22 and picture parameter sets referred to in the VCL NAL units,
23 and corresponding buffering period and picture timing SEI
24 messages, shall be conveyed to the HRD in a timely manner,
25 either in the bitstream by non-VCL NAL units, or by other

1 means not specified in this recommendation/international
2 standard." So the standard says that these picture timing
3 SEI messages and buffering period SEI messages shall be
4 conveyed to the decoder in a timely manner. It does not
5 require them to be within the bitstream. That is one way
6 that they can be conveyed. It says, "Either in the bitstream
7 by non-VCL NAL units, or by other means not specified."

8 Q There's another term that's used in the standard called
9 VUI or Visual User Information?

10 A I believe that's Video Usability Information.

11 Q Video Usability Information. Thank you. An example of
12 that is a color description?

13 A Yes.

14 Q And the H.264 standard does not require VUI parameters
15 relating to color description to be included in a conforming
16 bitstream, correct?

17 A That's correct. The syntax allows that to either be
18 present or not present.

19 MR. ROWLAND: No further questions.

20 REDIRECT EXAMINATION

21 BY MR. PRITIKIN:

22 Q Dr. Sullivan, do you have your witness binder handy there,
23 the one we started with?

24 A Yes.

25 Q Could you turn to Exhibit 2271, please. Yes, that's

1 correct. And you were asked some questions about this on
2 cross examination?

3 A Yes.

4 Q Now, I want to set the stage for this. Up until the time
5 of the formation of the JVT, had you included any interlaced
6 coding tools in your draft proposal?

7 A No. There was no interlaced coding tools included in the
8 work done in VCEG prior to the formation of the JVT.

9 Q And can you tell us why?

10 A Well, we generally were not especially interested in
11 coding interlaced video at the time. We thought it was an
12 old technology that would be fading into disuse. So we were
13 not working on trying to compress interlaced video content.

14 Q And if you hadn't included interlaced coding tools, how
15 would it have handled interlaced video?

16 A Well, if someone had interlaced video, they could
17 de-interlace it prior to encoding it, or they could just chop
18 it up into fields and code each field as a picture. So all
19 the pictures could be fields. Or they could code all the
20 pictures as frames without having any special frame/field
21 switching technology within the standard itself.

22 Q Now, there were prior standards that had interlaced coding
23 tools in them, is that right?

24 A Yes, that's correct.

25 Q And that was the MPEG-4 that was referred to, and MPEG-2?

1 A Yes, that's correct. Those were very well known
2 standards.

3 Q Now, in the summer of 2001, did Motorola come along and
4 start pushing for you to add interlaced coding tools?

5 A Well, they submitted this document to MPEG that we had a
6 discussion of that was sort of criticizing the behavior of
7 the design on interlaced video, which was perhaps not too
8 surprising to see a report like this, because we had not
9 really focused on coding interlaced video.

10 And, yes, around that time they were emphasizing trying to
11 get the committees to focus on interlaced video, which we
12 were not treating as important in the VCEG work.

13 Q Going back to Exhibit 2271, had they run some interlace
14 sequence using MPEG-4 and using your draft standard?

15 A Yes.

16 Q What's a sequence? Can you explain that to the court?

17 A A sequence is a snippet of video content, perhaps ten
18 seconds of video content.

19 Q Everything they tested was interlaced?

20 A Um --

21 Q That was the comparison?

22 A The focus of this document is on interlaced content. I
23 don't recall whether it has some progressive content tested
24 in it or not. But the emphasis here does seem to be on
25 interlaced content.

1 Q Would you turn to the second page of the document? And
2 just before the heading that has the No. 2 in it, can we pull
3 that paragraph out?

4 A Yes.

5 Q And what Motorola said in this document was, based on
6 these sequences, "However for interlaced video with moving
7 objects, H.26L performs almost the same or worse than MPEG-4,
8 due to lack of interlaced coding tools in H.26L." What do
9 you understand that to mean?

10 A Well, as expected, since there was no -- there were no
11 interlaced coding tools in the design, its performance was
12 not especially good if you tested it on that kind of content
13 that we had not considered.

14 Q If you had wanted to include interlaced coding tools in
15 your proposal, could you have used the interlaced coding
16 tools that were in MPEG-2?

17 A Yes, we could have.

18 Q And was there much of a difference in performance between
19 those and the interlaced coding tools that wound up in H.264?

20 A I believe there's no significant difference between what
21 is the interlaced coding tools in H.264 and what was in
22 MPEG-2.

23 Q Would you turn to Exhibit 424. And this is the article
24 that you co-authored. And you were asked a couple of
25 questions about -- let's turn first to page 567.

1 A Yes.

2 Q And let's look at the paragraph, the left column, the
3 first full paragraph there under the bullet point.

4 A Yes.

5 Q The article says that during the development of the H.264
6 standard, PAFF was reported to reduce bit rates on the range
7 of 16 percent to 20 percent over frame-only coding. What is
8 frame-only coding?

9 A That would be taking interlaced video, weaving the two
10 fields together, and coding that as a frame without any
11 special interlaced coding technology.

12 Q So was this a comparison of PAFF -- is PAFF the same as
13 PICAFF?

14 A Yes.

15 Q Was this a comparison of PICAFF with the earlier MPEG-2
16 coding tools?

17 A No, it was not.

18 Q Let's look at page 568, and let's look at the last
19 paragraph in the left column before the heading "G".

20 A Yes.

21 Q And here it says, "During the development of the standard,
22 MBAFF was reported to reduce bit rates in the range of 14 to
23 16 percent up over PAFF." Again, was this a comparison of
24 the MBAFF that is in the H.264 standard, with what was
25 available in MPEG-2?

1 A No, it is not.

2 Q And do you believe there would have been any substantial
3 difference between the two --

4 A No.

5 Q -- if a comparison had been drawn on that basis?

6 A No, I don't think there would be any significant
7 difference, relative to just applying the MPEG-2 style of
8 MBAFF, or -- and PICAFF in this comparison, in the H.264
9 context.

10 Q You were asked a couple of questions about DirectX which
11 has support for interlaced video; is that correct?

12 A Yes.

13 Q And why did you include support for interlaced video and
14 DirectX?

15 A We were just supporting the entire standard. Anything
16 that was in the standard, we put corresponding support for in
17 the DirectX Video Acceleration.

18 Q Finally, you were asked about Telenor, which I think you
19 said was one of the major contributors to H.264?

20 A Yes.

21 Q And was it your understanding that they had decided not to
22 seek patents on what they did?

23 A Yes. I believe they submitted a document at some point,
24 that was reported to the committee, saying that they had not
25 patented anything that was in the current draft.

1 Q Now, if we go back to sort of the backbone of H.264 on
2 your timeline, this VCEG draft from August of 1999?

3 A Yes.

4 Q What, if any, role did Telenor have in that?

5 A The VCEG draft of August 1999, essentially was the Telenor
6 proposal. It was -- the basis of the design was a proposal
7 from Telenor.

8 MR. PRITIKIN: Thank you, Dr. Sullivan. I have no
9 further questions, Your Honor.

10 THE COURT: All right. You don't get to step down.
11 Ladies and gentlemen, we'll take our morning break at this
12 time. When we come back, the court has some brief questions.
13 We'll be in recess for 15 minutes.

14 (The proceedings recessed.)

15 THE COURT: Counsel, it's been noted that I cut off
16 your redirect or recross.

17 MR. ROWLAND: Your Honor, if I just may ask a few
18 questions.

19 THE COURT: Please.

20 RECROSS EXAMINATION

21 BY MR. ROWLAND:

22 Q Dr. Sullivan, may I return you to your e-mail,
23 Exhibit 2345. You had testified earlier that your opinions
24 were your personal opinions expressed in the e-mail. You
25 weren't a lawyer.

1 A Yes.

2 Q You're referring to -- may I direct your attention to the
3 first paragraph?

4 A Yes.

5 Q And here you say, "I do, indeed, have some thoughts on
6 these subjects. Please see below note that these are
7 personal understandings and personal opinions. If you want
8 unassailable legal analysis, you have to hire an attorney. I
9 am not one." That's what you are referring to, right?

10 A Yes.

11 Q But you continued in your statement. You said, "But I
12 believe I have said all these things to you before, and that
13 anyone studying the situation would reach the same
14 conclusions and say roughly the same thing. There's no major
15 insight here. I don't really understand how a different
16 impression can persist." You said that?

17 A Yes.

18 Q And during your testimony you were asked questions about a
19 comparison between MPEG and H.264, correct?

20 A Yes.

21 Q Okay. Did you receive contributions where the performance
22 of MPEG-2 and H.264 were compared?

23 A The standards as a whole?

24 Q Yes.

25 A Yes.

1 Q And if you would look at Exhibit 574, do you have that in
2 front of you now?

3 A Yes.

4 Q And on page 141 there's Figure 7. This figure is showing
5 a comparison between the performance of H.264 and MPEG-2,
6 correct?

7 A Yes.

8 Q And this is showing a difference in performance in favor
9 of MPEG -- H.264?

10 A Yes.

11 Q Now, did you run any tests yourself comparing the
12 interlaced coding tools of MPEG-2 and those of H.264 in
13 connection with your work as chairman or rapporteur?

14 A The interlaced coding tools specifically?

15 Q Yes.

16 A I don't think so, no.

17 MR. ROWLAND: No further questions.

18 MR. PRITIKIN: Nothing further, Your Honor.

19 THE COURT: All right. My turn.

20 EXAMINATION

21 BY THE COURT:

22 Q We had a prior standard, MPEG-2. We migrated to H.264.
23 Why? What had happened that caused the change?

24 A Well, the main reason was to be able to code video more
25 efficiently, that is, to use fewer bits, or to be able to

1 achieve the same quality -- well, either to be able to
2 achieve the same quality with fewer bits per second, that is,
3 a smaller communication channel; or to be able to, for
4 example, use the same number of bits and achieve a higher
5 video quality.

6 Q And to do that, in category, not specifically, what were
7 the changes made between the two?

8 A There were lots of things that were changed between the
9 two designs. Methods of chopping the picture up into
10 regions; the precision of some of the information that was
11 sent was increased; some filtering techniques were made more
12 sophisticated, in what we call the entropy coding technology,
13 was made more sophisticated. There were lots of changes in
14 all the parts of the design.

15 Q Are you familiar with what Motorola patents have been
16 declared essential in the H.264 standard?

17 A I'm not sure about exactly understanding what has been
18 declared essential. But I am familiar with some of the
19 Motorola patents that I believe are involved here.

20 Q Okay. What areas did those patents go to?

21 A Primarily the frame/field adaptive coding for interlaced
22 video.

23 Q And in terms of the improvement from MPEG-2 to H.264, how
24 important is that area?

25 A In my view, that part of the technology is quite similar

1 in the two standards. I am not aware of any comparison that
2 has shown that the way anything is done differently in
3 frame/field -- the frame/field adaptive part of the coding
4 technology, I'm not aware of any analysis that has shown that
5 changes to that part of the technology brought any
6 significant benefit.

7 Q In keeping with the adage, "Never write in an e-mail what
8 you wouldn't want your mother to see," using your distinction
9 between "fundamentally important" and "Bozo-tweak," which
10 camp am I in in terms of Motorola's improvements?

11 A Well, I hesitate to use real colorful language, but I
12 would say not the fundamental-improvement category.

13 Q You're a Microsoft employee, you're serving as the
14 chairman of this process, why was it important to Microsoft?

15 A As a company it's important -- Microsoft ends up having
16 many applications that use video in one way or another, or
17 are related to video. And it's important for the company to
18 be able to implement the standard that is being used by the
19 industry as a whole. Also just to be aware of what is
20 happening in the industry-development of these standards.
21 The standards become a significant part of many products, and
22 the interoperability between the products of Microsoft and
23 the products of other companies depends, in this case,
24 significantly on the standard. So I think there were a
25 number of business reasons for the company to be involved.

1 Q In terms of where Microsoft's product line was going, was
2 streaming video something that was of greater concern or a
3 side show in terms of this time period?

4 A I think it was recognized as an increasingly important
5 technology that would continue to become increasingly
6 important over time.

7 Q If you know, did Microsoft seek to have any of its patents
8 declared essential -- standard essential in H.264?

9 A If you're referring to patent pool activity, I believe,
10 yes.

11 Q Let's step one step back from the patent pool. I
12 understand the patent pool covers patents that have been
13 declared standard essential. Did Microsoft seek to have any
14 of its patents declared standard essential?

15 A I believe so, yes.

16 Q I think I understand that.

17 A Couple of things I'm not sure I understood. You
18 said, if I understood it correctly, that there was a
19 50 percent improvement in bit rate without interlaced coding
20 tools. Did I understand your testimony correctly?

21 A That's referring to progressive scan video content. It's
22 not referring to testing on interlaced scan video content.

23 Q Would there have been a 50 percent improvement in bit rate
24 without the MBAFF coding/decoding techniques?

25 A For interlaced video, probably not.

1 Q Do you think that the MPEG-2 would have been the
2 equivalent of MBAFF?

3 A The MBAFF in MPEG-2 is very similar in its functionality
4 to the MBAFF in the H.264 and MPEG-4 AVC.

5 Q At some point you have a relationship with the ITU in
6 terms of setting the standard. Do they ever communicate to
7 you that someone is not prepared to license on RAND terms?

8 A That could happen. There is a form that companies use to
9 report patent rights to the ITU. And the form has several
10 categories that the submitter can identify. And one of those
11 categories is if they are not willing to license under RAND
12 terms. We never had a submission in that category.

13 If we had a submission in that category, we would remove
14 whatever the technology was for which a patent was essential,
15 because we only standardize things that are licensable under
16 RAND terms.

17 Q Is it your understanding that to practice the H.264
18 standard, you need a license to every industry-essential
19 patent in the standard?

20 A Well, there are different profiles in the standard.

21 Q You use the term "profile" and I don't think I know what
22 that is.

23 A Profile is sort of a package of features. So if you want
24 to make a decoder, the decoder would normally be -- have an
25 identified profile. It would say which of these subsets of

1 the standard the decoder supports. So within the bounds of a
2 particular profile, you should get a license to the patents
3 necessary to implement that part of the standard.

4 THE COURT: Mr. Pritikin, any follow-up?

5 MR. PRITIKIN: No, sir.

6 MR. ROWLAND: No, Your Honor.

7 THE COURT: Mr. Sullivan, thank you very much. You
8 may step down.

9 Microsoft will call its next witness, please.

10 MR. PRITIKIN: Yes, Your Honor, as its next witness
11 Microsoft calls Jennifer Ochs.

12 JENNIFER OCHS

13 Having been sworn under oath, testified as follows:

14 THE CLERK: Take the stand, please.

15 Will you state your name for the record and spell your
16 last name, please?

17 THE WITNESS: Jennifer Ochs, O-C-H-S.

18 THE COURT: You may inquire.

19 DIRECT EXAMINATION

20 BY MR. PRITIKIN:

21 Q Ms. Ochs, by whom are you employed?

22 A Marvell Semiconductor, Inc.

23 Q Are you testifying here pursuant to a trial subpoena?

24 A Yes.

25 Q What business is Marvell in?

1 A Marvell designs and markets semiconductor chipsets.

2 Q What is your position at the company?

3 A I'm the Director of IP litigation.

4 Q And as Director of IP litigation, what are your primary
5 responsibilities?

6 A I oversee all of Marvell's patent litigation cases. I'm
7 also involved in licensing negotiations, to resolve those
8 litigations, and am involved in indemnity issues.

9 Q As a part of your work at Marvell, do you have some
10 knowledge and familiarity with Marvell's products and
11 Marvell's patents?

12 A Yes.

13 Q How long have you been with Marvell?

14 A About three years.

15 Q What did you do before that?

16 A I was a partner at Wilson Sonsini in the IP litigation
17 group.

18 Q For how many years?

19 A '97 to 2009.

20 Q And do you have any graduate degrees besides your law
21 degree?

22 A I have a master's in electrical engineering.

23 Q Did you work before attending law school?

24 A I worked as an electrical engineer.

25 Q Now, let's talk about Marvell and its customers. Is

1 Motorola a customer of Marvell?

2 A Yes.

3 Q Is Microsoft a customer of Marvell?

4 A Yes.

5 Q What products does Marvell sell to Microsoft for use in
6 Microsoft's Xbox gaming consoles?

7 A We sell WiFi chips.

8 Q What is a WiFi chip?

9 A It's a chip that implements the 802.11 standard.

10 Q Do the chips sold by Marvell, that you referred to,
11 contain substantially all that is needed to provide 802.11
12 functionality in a product like Xbox?

13 A Yes.

14 Q And is that the intended use?

15 A Yes.

16 Q Do these WiFi chips have any other use besides providing
17 802.11 functionality?

18 A No.

19 Q Approximately how much does Marvell charge for the WiFi
20 chips of the kind it sells to Microsoft?

21 A Between \$3 to \$4.

22 Q And does Marvell sell similar WiFi chips to other
23 customers?

24 A Yes.

25 Q What sorts of products? Can you give us some examples of

1 other customers that purchase these and what they're used in?

2 A The WiFi chips are used in a wide variety of applications,
3 ranging from other gaming systems to automotive applications.

4 Q So, for example, does the Sony PlayStation contain the
5 Marvell IEEE 11 chip?

6 A It does.

7 Q Automobiles. Can you give us an example of an automobile
8 that contains the Marvell 802.11 chip?

9 A It was recently announced that the Audi A-8 will have a
10 Marvell chip.

11 Q Do you have the price range of these various end products
12 that contain Marvell's WiFi chips?

13 A Roughly.

14 Q Can you give us some broad range of what it is?

15 A So, I think the gaming stations are a few hundred dollars.
16 And, of course, the car is, I think, \$80,000. I'm not sure.

17 Q How do the WiFi chips that are sold to Marvell's other
18 customers compare to those that are sold to Microsoft?

19 A They're standards-compliant chips, so they're commodity
20 products, essentially.

21 Q And you have some familiarity with the 802.11 standard?

22 A Yes.

23 Q Has it evolved over time?

24 A It's continually evolving.

25 Q Has Marvell been involved in that process?

1 A Yes. Several Marvell engineers are involved in various
2 802.11 committees. And, in fact, one of our executives is
3 the chair of the 802.11 working group.

4 Q Has Marvell made contributions in the standards
5 development process for 802.11?

6 A Yes.

7 Q And approximately how many issued 802.11 patents does
8 Marvell have, in the United States?

9 A We have a few hundred issued patents.

10 Q How important do you consider the Marvell 802.11 portfolio
11 to new and emerging WiFi products?

12 A Well, we consider our 802.11 portfolio to be very
13 valuable, particularly with respect to the newer standards.
14 We're a younger company. The patents we're pursuing
15 currently are new patents, they have a long life ahead of
16 them. And they relate to the latest 802.11 standards.

17 Q Just to be clear on that, the current standard is -- or
18 the latest is 802.11-N?

19 A That's the latest approved standard. There's the
20 802.11-AC which has been issued, I believe, in draft form.

21 Q How important do you expect your patents to be in
22 connection with AC products?

23 A We believe them to be very important.

24 Q Now, over the past year and a half have you had any
25 dealings with Motorola related to the licensing of Motorola's

1 802.11 essential patents?

2 A Yes.

3 Q Have you been personally involved in those discussions?

4 A Yes.

5 Q Could you turn to Exhibit 1608 in your binder.

6 A (Witness complies.) Yes.

7 Q Can you tell us what this letter is?

8 A This is a letter that we drafted to Motorola requesting
9 that they provide us with their --

10 MR. HARRIGAN: I'm sorry, Your Honor. We don't have
11 a binder.

12 A This is a letter we drafted to Motorola requesting they
13 provide us their RAND license.

14 Q I'm sorry, let's -- can you tell us again?

15 A Yes. We drafted this letter to Motorola, requesting that
16 they provide us with their RAND license.

17 MR. PRITIKIN: Microsoft moves the admission of
18 Exhibit 1608.

19 MR. PALUMBO: No objection, Your Honor.

20 THE COURT: Admitted.

21 (Exhibit No. 1608 was admitted into evidence.)

22 Q The letter is signed by whom?

23 A This was signed by Jinping Yang, who reports to me.

24 Q Who drafted this letter?

25 A I drafted it.

1 Q What is it that prompted you to send this request to
2 Motorola?

3 A Microsoft made a request to us that we request a license
4 on RAND terms from Motorola.

5 Q And was that pursuant to an indemnification arrangement?

6 A Yes.

7 Q And how would a license for Marvell's WiFi chips have
8 benefited Microsoft?

9 A Well, we would have ideally obtained a license that would
10 have exhausted any further claims that would have been made
11 by Motorola against our customers.

12 Q In the first paragraph the letter mentions a March 1994
13 intellectual property statement on the Motorola proposals in
14 the IEEE 802.11 standards body. Do you understand that to be
15 a letter of assurance?

16 A Yes.

17 Q What did you understand Motorola had committed to do based
18 on this letter of assurance?

19 A I understood that Motorola had committed to license their
20 standard essential patents on fair, reasonable, and
21 non-discriminatory terms.

22 Q After this letter was sent, did you have some e-mails back
23 and forth with anyone at Motorola?

24 A I did.

25 Q With Mr. Kowolski?

1 A Yes.

2 Q Did you tell Motorola why you wanted the license?

3 A Yes.

4 Q What did you tell them?

5 A That it was our intent to get a license that would protect
6 our customer, Microsoft.

7 Q Did Motorola eventually make a license offer to Marvell?

8 A They did.

9 Q Could you turn to Exhibit 16 in your binder?

10 And there is an e-mail and a draft license agreement.
11 Can you explain what this is?

12 A This e-mail and draft license agreement is what
13 Mr. Kowolski sent to me.

14 Q When did he send it to you?

15 A Friday, November 25, 2011.

16 MR. PRITIKIN: Microsoft moves the admission of
17 Exhibit 16, Your Honor.

18 MR. PALUMBO: No objection, Your Honor.

19 THE COURT: 16 is admitted.

20 (Exhibit No. 16 was admitted into evidence.)

21 Q I want to ask you about some of the provisions of this
22 proposed draft license agreement you got back from Motorola.
23 As you understand it, did it license -- did the agreement
24 actually include a license for Marvell's chips?

25 A No.

1 Q What did you understand that it would cover?

2 A As I read this agreement, it would cover products that use
3 our chips. But it is not a license to our chips.

4 Q You said you asked for a license to cover the product you
5 sold to Microsoft?

6 A Yes.

7 Q Were any of your customers specifically excluded from this
8 agreement?

9 A Yes. There's a section in the back called "repudiating
10 parties". And those specific parties are excluded from this
11 agreement. And that includes Microsoft and Apple.

12 Q Now, what was your reaction to that?

13 A Well, it was entirely contrary to what we had asked for.
14 We had asked for a license that would enable us to protect
15 our customers, specifically Microsoft in this case.

16 Q Did you consider a license that applied to products that
17 were sold to some of your customers, but excluded others, to
18 be discriminatory?

19 A Yes. I would consider that discriminatory.

20 Q Let's talk about the financial terms of the license offer.
21 What was the royalty rate that Motorola requested that
22 Marvell pay?

23 A The royalty rate was 2.25 percent of the net selling price
24 of the end-user product.

25 Q And did this change based on different end uses of your

1 customer's products?

2 A Well, the percentage, I assume, would not change. But you
3 would apply it against different net selling prices, so the
4 amount effectively would change.

5 Q Let's see how that would work. So if the net selling
6 price of a gaming system, like an Xbox or a Sony PlayStation,
7 including one of the Marvell 802.11 chips, is \$200, as you
8 understand it, the royalty demanded by Motorola would have
9 been \$4.50?

10 A Yes.

11 Q How does that compare to the price of the WiFi chips that
12 Marvell sells?

13 A That royalty is slightly higher than the cost of the chip
14 itself.

15 Q Now, let's see how it would apply in the future if Marvell
16 sold a WiFi chip to a computer manufacturer. Assume with me
17 that a laptop has a net selling price of \$1,000, would the
18 royalty under this proposed license be \$22.50?

19 A Yes.

20 Q And how does that compare to the price that Marvell
21 charges for the WiFi chips?

22 A Well, that's several times the price of our chip.

23 Q Now, you told us earlier that Marvell sells WiFi chips to
24 Audi for use in its A-8?

25 A That's right.

1 Q Now, let's suppose an A-8 sells for \$100,000. How much
2 would the royalty be that Motorola was asking for?

3 A That would be over \$2,000.

4 Q Now, if Marvell had agreed to the terms of this license,
5 how would that have affected Marvell's chip business, WiFi
6 chip business?

7 A Well, we could not have agreed to these terms. That's a
8 going-out-of-business model to pay such rates.

9 Q Did you consider the royalty provisions of Motorola's
10 offer to be commercially reasonable?

11 A No.

12 Q Would it be practical for Marvell to pay different
13 royalties based on the nature of your customers' end-use
14 products like this?

15 A It would not be practical because in many cases we don't
16 know the end use of our chips.

17 Q Besides Marvell and Motorola, do you understand that there
18 are other companies that claim to have patents that are
19 essential to the 802.11 standard?

20 A Yes.

21 Q And in your view, even if the royalty rate was limited to
22 two and a quarter percent, not of the end price, but just of
23 the Marvell chip, could Marvell afford to pay this royalty to
24 every company that claims that it has essential 802.11
25 patents?

1 A No. The profit margin on semiconductor chips is quite
2 small, and at 2.25 percent of even the chip price, you can't
3 pay too many royalties before you just run out of profit.

4 Q Is patent stacking a concern for you?

5 A Yes. That's the patent stacking problem or royalty
6 stacking problem.

7 Q In your experience have you ever heard of a chip maker
8 paying a running royalty on the end-product price of its
9 customers' products?

10 A I have not heard of that.

11 Q In your experience at Marvell, is there a public benchmark
12 Marvell uses to assess the reasonableness of running
13 royalties of semiconductor chips?

14 A We have in the past used the publicly-reported licensing
15 rate provided by ARM Holdings. That's a publicly-reported
16 rate of one percent of the average selling price of the chip,
17 in exchange for which ARM provides not only patent licenses,
18 but significant IP that can be readily incorporated into a
19 semiconductor chip.

20 Q Does that include design and know-how?

21 A Yes.

22 Q How does Marvell use this benchmark?

23 A Well, for one percent we get considerable IP, which is
24 ready to use. And so we would consider one percent of the
25 average selling price of a chip to be a high ceiling of what

1 a semiconductor company should pay for a royalty.

2 Q And how does what you license from ARM compare to what you
3 would obtain in a license to a party's 802.11 standard
4 essential patent?

5 A So, as I've noted, we don't just license patents, but we
6 also license a microprocessor core, or directions on how to
7 design a microprocessor core. And that's considerable
8 valuable IP.

9 Q Do you consider a two-and-a-quarter percent royalty on the
10 average selling price of the customer end-product that has
11 your chip in it to be a reasonable starting point for any
12 negotiation?

13 A No.

14 Q Do you consider two-and-a-quarter percent of the average
15 selling price, just of your chip, to be a reasonable starting
16 point for a negotiation?

17 A No.

18 MR. PRITIKIN: No further questions, Your Honor.

19 THE COURT: Thank you. Mr. Palumbo.

20 CROSS EXAMINATION

21 BY MR. PALUMBO:

22 Q Good morning, Ms. Ochs. My name is Ralph Palumbo. And as
23 you might have guessed, I represent Motorola in this matter.
24 Where do you reside?

25 A I live in Palo Alto, California.

1 Q Where were you served with your trial subpoena?

2 A I accepted service by e-mail.

3 Q And were you advised by anyone as to whether or not e-mail
4 acceptance of a subpoena outside the Western District of
5 Washington would compel you to testify here today?

6 A I'm not sure that it does.

7 Q You've negotiated several RAND licenses for chipsets, yes?

8 A Yes.

9 Q You would agree, in negotiating a RAND license, that
10 process can be very complex and time consuming. Yes?

11 A Yes.

12 Q There are a number of material terms that need to be
13 negotiated in a RAND licensing agreement. Also agree?

14 A Yes.

15 Q And those terms would include -- the material terms, would
16 include representations and warranties. Yes?

17 A Yes.

18 Q Geographic scope of the license?

19 A Yes.

20 Q Term of the license that would need to be negotiated.
21 Yes?

22 A Yes.

23 Q Scope of release. Yes?

24 A Yes.

25 Q Products covered by the license would have to be

1 negotiated. Yes?

2 A Yes.

3 Q Typically there would be a defensive suspension provision
4 in a RAND license. Yes?

5 A No, I would not agree with that.

6 Q In the back of your binder you have your testimony before
7 the International Trade Commission. Could you turn to that
8 please, Ms. Ochs?

9 A Yes.

10 Q This was testimony that you gave at a hearing before the
11 United States International Trade Commission on Wednesday,
12 January 18th. Yes?

13 A Yes.

14 Q If you'll turn to page 1937, lines 21 to 25, you were --
15 it's the second page of this -- I'm sorry, it's not the
16 second page. It's 1937.

17 A Yes.

18 Q And you were sworn to testify to the truth, the whole
19 truth, and you agreed to do so. Yes?

20 A I did.

21 Q Will you turn to, now, page 1979. And let's look at,
22 starting at line 3, tell me when you're there, please,
23 Ms. Ochs.

24 A Yes.

25 Q The question you were asked, "Are you familiar with that

1 term? Defensive suspension provision." And you said, "I
2 am." Question: "What is that?" You said, "I am -- typically
3 in the context of entering into a standards body with other
4 competitors, or even in agreements like this, there is a
5 provision whereby if the other party initiates an action
6 against you, you may suspend or somehow modify the RAND
7 obligation." That was the answer you provided?

8 A Yes. So I'm not sure if you're focusing on the word
9 "typically". I am familiar with defensive suspension. I've
10 seen them more recently. And the RAND agreements I've worked
11 on in the past, we had not included such provisions. Now I
12 think the parties are trying to be more sophisticated in
13 including them.

14 Q If you'll turn to the next page, 1980, and we'll start on
15 line 13. Tell me when you're there, Ms. Ochs.

16 A Yes.

17 Q The question was asked, "So the license you would normally
18 expect, and this would be -- this is not an unusual term in
19 license agreements, this defensive suspension provision would
20 exclude a license to Microsoft through Marvell, correct?"
21 And you answered, "Yes. Although we had specifically asked
22 for a license that would cover Microsoft." That was the
23 answer you gave on that day. Yes?

24 A I agree with that. I think as a more nuanced answer, I
25 think that's the more current trend. I believe you started

1 this line of questioning about asking about my background in
2 RAND licenses, and we had not included this previously.

3 Q Okay. Negotiation of a RAND license would also involve
4 the negotiation of the royalty rates. Yes?

5 A Yes.

6 Q And RAND licenses also often include or typically include
7 a cross-licensing agreement. Yes?

8 A Yes.

9 Q And the cross-licensing agreement will affect the royalty
10 rate paid to the licensee. Yes?

11 A It could.

12 Q So, for example, you could have an offer of a license and
13 a counteroffer of a cross-license such that the license
14 offered by the licensor, and the royalty rate for that was
15 canceled out entirely by the cross-license. So effectively
16 you'd have a license and a cross-license, and neither party
17 would pay anything to the other party, correct?

18 A Yes. But the opening offer should at least be on the same
19 order of magnitude of what you think a reasonable offer would
20 be.

21 Q Right. And you've told us that Marvell's patents -- you
22 believe Marvell's patents are important, or very important to
23 the 802.11 standard, yes?

24 A Yes.

25 Q And in this case Motorola offered a license to Marvell for

1 its 802.11 patents, correct?

2 A Yes.

3 Q And Marvell made a counterproposal in which it offered to
4 license Marvell's 802.11 patents to Motorola, correct?

5 A I'm not sure if you would call it a formal
6 counterproposal. We did have an in-person meeting.

7 Q You actually provided a red-lined counterproposal?

8 A We did. But we didn't provide a number.

9 Q Under Marvell's proposal you would pay nothing to license
10 Motorola's patents, 802.11 patents, and Motorola would pay
11 nothing to license Marvell's 802.11 patents?

12 A That's right.

13 Q So the royalties for your important 802.11 patents and
14 Motorola's 802.11 patents would have canceled each other out,
15 correct?

16 A Yes.

17 Q Now, during the time that you are aware Marvell has been
18 selling semiconductor chips, Motorola never told Marvell it
19 needed a license to Motorola's 802.11 patents, correct?

20 A That's right.

21 Q And, in fact, Motorola affirmatively told Marvell that it
22 had no intention of asserting its 802.11 patents against
23 Marvell, correct?

24 A That's right.

25 Q And after you approached Motorola for a license, you

1 learned that Motorola historically did not license chipset
2 manufacturers, correct?

3 A Yes.

4 Q In fact, you understood that Motorola had a
5 well-established program of licensing end-users such as
6 Microsoft on Motorola's 802.11 patents, correct?

7 A That's what I was told.

8 Q The only reason that Marvell requested a license of
9 Motorola's 802.11 patents was because Microsoft claimed
10 Marvell was contractually obligated to do so. Yes?

11 A Yes.

12 Q And, in fact, Marvell contests that it is required to get
13 a RAND license for Microsoft, right?

14 A We have never conceded that the particular indemnity
15 provision that was invoked here by Microsoft is applicable or
16 controlling. But, nevertheless, we have complied with their
17 request.

18 Q You never admitted that you actually have an obligation to
19 seek a RAND license from Motorola for Microsoft, correct?

20 A We haven't admitted that, under our indemnity obligation,
21 that we are bound to do so. But they're a very significant
22 customer, and so forth. So we'll try and comply.

23 Q Could we have Exhibit 1610. And you will find that in
24 your binder, Ms. Ochs.

25 A Yes, I have it.

1 Q This is a letter from Jinping Yang of Marvell, to Leonard
2 Smith of Microsoft, right?

3 A Yes.

4 Q Dated March 24, 2011. Yes?

5 A Yes.

6 Q And you're the person at Marvell who actually drafted this
7 letter, correct?

8 A I might have edited a draft that she provided.

9 Q You didn't draft this?

10 A It looks familiar. I'm familiar with this letter. I just
11 don't remember if I was the original drafter, as I was with
12 the other one that was introduced.

13 Q Let's see if I can refresh your recollection. If you can
14 turn, again, to your ITC testimony. This time let's look at
15 page 1994. And we'll start at page 9, or line 9. Tell me
16 when you have it, Ms. Ochs.

17 A Yes.

18 Q If you'll notice on your copy of Trial Exhibit 1610,
19 there's a letter designation in the upper right-hand corner,
20 CX 819-C. Do you see that?

21 A Yes.

22 Q If you look at line 9, these are questions about CX 819-C,
23 which is now Trial Exhibit 1610.

24 A That's fine.

25 Q It's referring to this letter dated March 24th. And at

1 line 20 you were asked, "Are you familiar with this letter?"
2 You said, "Yes." Question: "You mentioned that you drafted
3 another letter for Jinping Yang. Did you draft this one?"
4 Your answer is: "I believe I drafted this one also."

5 A So, I believe I drafted this one. I don't specifically
6 remember. My recollection at the time of the ITC testimony
7 might have been a little fresher than it is now as to whether
8 I drafted this full letter, or as to whether I edited it,
9 which is what I think I did now.

10 MR. PALUMBO: We'll move admission of 1610, Your
11 Honor.

12 MR. PRITIKIN: No objection.

13 THE COURT: 1610 is admitted.

14 (Exhibit No. 1610 was admitted into evidence.)

15 Q If you'll look, Ms. Ochs, at the third paragraph of 1610,
16 the first sentence which says, "The November 30, 2004
17 agreement between Marvell and Microsoft, which you reference
18 in your letter, contains exclusions to our indemnity
19 obligations," and so on. The November 30, 2004 agreement is
20 the agreement that governs Marvell's sale of chipsets to
21 Microsoft. Yes?

22 A Yes.

23 Q That is also the agreement Microsoft claims requires
24 Marvell to indemnify Microsoft by getting a RAND license for
25 Microsoft to Motorola's 802.11 patents. Yes?

1 A Yes.

2 Q The first paragraph, first sentence says, "This letter is
3 in response to Microsoft Corporation's November 24, 2010 and
4 March 14, 2011 letters to Marvell in relation to the patent
5 infringement suits filed by Motorola." Do you see that?

6 A Yes.

7 Q And those letters, the November 24, 2010 and March 11,
8 2011 letters, are the letters in which Microsoft claimed it
9 had the right to require Marvell to procure a RAND license
10 from Motorola, right?

11 A Yes.

12 Q And then if you'll look at the last sentence of the third
13 paragraph which says, "Further, the Motorola action appears
14 to have been a retaliatory effort prompted by Microsoft's
15 initiation of legal proceedings against Motorola. And as
16 such, it is unclear that Marvell owes an indemnity to
17 Microsoft in these circumstances." That's your language,
18 correct?

19 A Yes.

20 Q And so what you're saying there is, look, Microsoft
21 started this fight and began the litigation with Motorola,
22 it's Microsoft's fight, not Marvell's, and we don't think we
23 ought to be involved. That's what you're saying, correct?

24 A In essence, yes.

25 Q What you're saying to Microsoft is that Marvell doesn't

1 owe an indemnity obligation. That was your argument. Yes?

2 A Yes.

3 Q Now, if you'll look at 1608, Ms. Ochs, which you testified
4 about here in your direct examination. This is a letter from
5 Jinping Yang to the patent licensing organization at
6 Motorola. Yes?

7 A Yes.

8 Q And this is another letter that you drafted. Yes?

9 A Yes.

10 Q If you'll look at the last paragraph, this is your
11 request, Marvell's first request to Motorola for a RAND
12 license to Motorola's 802.11 patents, correct?

13 A Right.

14 Q And this letter is seven years after Marvell entered into
15 its purchase agreement with Microsoft, that Microsoft claims
16 requires Marvell to get a license, right?

17 A I don't, off the top of my head, have the date of that
18 agreement. But I'll take your word for it. It is seven
19 years.

20 Q I can refresh your recollection, if you'd like.

21 A If you'd like.

22 Q Again, ITC 1999. And we'll start at line 20. Again, tell
23 me when you're there, Ms. Ochs.

24 A Yes, I see that.

25 Q You were asked the question, "I understand that. And to

1 put a further point on the timeframe involved here, this
2 letter in July 2011 is seven years after Marvell entered into
3 its purchase agreement with Microsoft that required you to
4 indemnify or obtain patents for Microsoft, correct?" And
5 your answer was, "Yes."

6 A Yes. I'm hesitating, because at the ITC I actually had
7 the agreement in front of me so I could confirm the date.
8 And I don't know if it's here. That's the only issue. I'm
9 just not entirely sure what the date was now.

10 Q But, in any case, that was your testimony?

11 A That is what the question was. And I presume I had the
12 agreement in front of me at the time to confirm that was, in
13 fact, the date.

14 Q So, seven years after Motorola started selling chips to
15 Microsoft, Microsoft came to Marvell and said, we want you to
16 get a license from Motorola for the chips you're selling to
17 us, right?

18 A Well, to be sure, throughout the course of this agreement,
19 they have on several occasions asked us to indemnify them for
20 patent-related issues that concern our chips.

21 Q So far as you are aware, Microsoft has not come to Marvell
22 in any other situation in the past seven years and said, we
23 want you to go get a license to these patents to cover our
24 chips, correct?

25 A Typically they asked us to pay their attorneys fees'

1 rather than invoke the other provision. So this is the first
2 time, I think, in my knowledge, to my knowledge, they've
3 invoked this provision.

4 Q You've not heard anything, you're not aware of any
5 instance in the past seven years where Microsoft has come to
6 Marvell and said, we want you to go get a license for patents
7 that cover our chips, right?

8 A Not to my knowledge.

9 Q Now, you testified that Microsoft made its first indemnity
10 demand on November 24, 2010. And then what we see is that
11 Marvell waited eight months, almost eight months until
12 July 18, 2011 to send the letter to Motorola requesting a
13 RAND license, correct?

14 A That's right.

15 Q Now, if you'll look at Exhibit 16, Ms. Ochs, which you
16 also testified about in your direct examination. Exhibit 16
17 are two e-mails from Mr. Kowolski to you, correct?

18 A Yes.

19 Q And they both relate to licensing discussions between
20 Motorola and Marvell, right?

21 A Yes.

22 Q If you'll look at Mr. Kowolski's November 25th e-mail, top
23 of the page, first paragraph, he says, "Further, pursuant to
24 Marvell's request, attached is a copy of the proposed license
25 agreement for Marvell's consideration." Yes?

1 A Yes.

2 Q So on or about the 25th of November -- well, actually, on
3 the 25th of November, Motorola responded and sent you a
4 proposed license agreement, correct?

5 A Yes.

6 Q And Mr. -- and the third paragraph, Mr. Kowolski offers to
7 meet with you the week of December 12th to discuss Motorola's
8 proposed license, correct?

9 A Yes.

10 Q But you didn't meet with Mr. Kowolski in December 2011,
11 did you?

12 A They terminated that meeting, yes.

13 Q In fact, more than five months later, as of June 2012,
14 Marvell had still not provided Motorola with any comments or
15 counterproposal to Motorola's proposed license, right?

16 A Well, we wanted to have this meeting so that we could
17 present the Marvell portfolio to them, to establish the value
18 of that. And they -- after terminating the meeting the week
19 of December 12th, they said they didn't want to meet while
20 the ITC trial was pending. But after some time had passed,
21 then they were available to meet, and we did meet.

22 Q You have, in your binder, Trial Exhibit 3412, if you'll
23 look at that, please, Ms. Ochs, and tell me when you have it
24 in front of you.

25 A Yes.

1 Q And there are two e-mails on this exhibit, one from
2 Mr. Kowolski to you, and one from you to Mr. Kowolski,
3 correct?

4 A Yes.

5 Q They both relate to licensing discussions. Yes, Ms. Ochs?

6 A Yes.

7 MR. PALUMBO: We move for admission of 3412, Your
8 Honor.

9 MR. PRITIKIN: No objection.

10 THE COURT: 3412 is admitted.

11 (Exhibit No. 3412 was admitted into evidence.)

12 Q If you look at the second e-mail, which is from
13 Mr. Kowolski to you on June 4, 2012, in the second sentence
14 he said, "Given that over six months have passed since
15 Motorola Mobility provided Marvell a draft license agreement,
16 please provide Marvell's comments to that draft, or a
17 counterproposal to Motorola Mobility in advance of our
18 meeting so we can prepare to address Marvell's concerns, if
19 any, at our meeting." That's what Mr. Kowolski wrote you on
20 that day. Yes?

21 A Yes.

22 Q Now, if you'll look at Trial Exhibit 3404, please,
23 Ms. Ochs. And, again, tell me when you're there.

24 A Yes.

25 Q 3404 is an e-mail from you to Mr. Kowolski dated

1 November 7, 2012, and an e-mail from Mr. Kowolski to you
2 dated November 6, 2012, correct?

3 A Yes.

4 Q Both relate to licensing discussions, correct?

5 A That's right.

6 MR. PALUMBO: We move admission of 3404.

7 MR. PRITIKIN: No objection.

8 THE COURT: 3404 is admitted.

9 (Exhibit No. 3404 was admitted into evidence.)

10 Q Please look at the bottom of the first page of 3404, and
11 continuing on to the second page where Mr. Kowolski writes,
12 "I also write to follow up on our June 26 meeting at
13 Marvell's office. At that meeting, in response to Motorola
14 Mobility's initial proposal, Marvell presented a
15 counterproposal with a royalty-free cross-license." So
16 Marvell finally gave Marvell a counterproposal on the 26th of
17 June, 2012, correct?

18 A Yes.

19 Q And in the counterproposal Marvell proposed to license
20 Motorola to Marvell's 802.11 patents on a royalty-free basis.
21 The royalties would cancel each other out, correct?

22 A Yes.

23 Q Motorola responded to that proposal by asking Marvell to
24 provide claim charts, correct, for these patents?

25 A Yes.

1 Q You agreed to do that, correct?

2 A We did.

3 Q It's now November 2012, and Marvell still hasn't provided
4 any claim charts to Motorola, correct?

5 A We have not. We have some in progress. I'm afraid it
6 hasn't been a high priority. We have other things that are
7 more compelling, and given how far apart we were at the
8 negotiations, it just hasn't been a high priority. But we
9 are almost done. And we can provide those.

10 Q So if my calculations are right, it's been 24 months since
11 Microsoft came to Marvell and said, go get us licenses for
12 Motorola's 802.11 patents, right?

13 A I'll trust your timing.

14 Q And at least 18 months of that period in completing
15 license negotiations was consumed by Motorola waiting for
16 something from Marvell, correct?

17 A Repeat that. Could you please repeat that?

18 Q Yeah. Well, I can break it down. First, after getting
19 Motorola's demand, Marvell waited eight months before it
20 actually sought an 802.11 license from Motorola, correct?

21 A So, after getting Motorola's demand, we had been
22 endeavoring to set up our in-person meeting so we could
23 provide our feedback. And we did do that. The meeting was
24 delayed by the ITC trial.

25 Q All right. But there was eight months between Microsoft

1 saying, go get us licenses to Motorola's patents, and the
2 time you actually wrote a letter to Motorola requesting a
3 license, right?

4 A Yes. As we've discussed, we tried to push back on
5 Microsoft as much as we can. This would be a significant
6 undertaking. And we needed to get consensus that this is, in
7 fact, the path we wanted to go down. We were not anxious to
8 go down this path.

9 Q And then after receiving Motorola's license on the 25th of
10 November 2011, Marvell took another seven months before it
11 made its June 26, 2012 counterproposal?

12 A I would dispute that because we were planning to meet in
13 December, and we had these materials ready. And then
14 Motorola canceled that meeting because of the pendency of the
15 ITC trial. And then once they became available to have the
16 next meeting, we did.

17 Q And it was on the 26th of June that you finally provided a
18 counterproposal, right?

19 A Well, we provided a red-lined, you know, it was our
20 opening negotiating proposal.

21 Q Right. And now we've had, since you provided your
22 red-lined and promised to give claim charts, another five
23 months have passed, right?

24 A Yes.

25 Q So it's fair to say, isn't it, Ms. Ochs, that Marvell

1 isn't moving very quickly to get a RAND license for
2 Motorola's 802.11 patents, right?

3 A I suppose that's relative. But, you know, we're doing the
4 best we can.

5 MR. PALUMBO: I think that's all I have, Your Honor.
6 Thank you, Ms. Ochs. Oh, yeah, just --

7 Q (By Mr. Palumbo) Your red-lined proposal to Motorola,
8 when you received Motorola's license, I take it from what
9 you've told us that you didn't think Motorola's license was
10 even in the ballpark, correct?

11 A That's right.

12 Q And you've told us that you thought it was just not at all
13 -- it just wasn't vaguely a reasonable RAND offer, correct?

14 A Right.

15 Q And so the way you responded to that was you made a
16 counteroffer, right? You gave them a red-lined -- you said,
17 we'll give you a cross-license, royalty free. You responded
18 to the offer, despite the fact of the manner in which you
19 viewed it, correct?

20 A I suppose you could characterize it that way, yes.

21 Q Thank you.

22 MR. PALUMBO: That's all I have at this point, Your
23 Honor.

24 MR. PRITIKIN: I just have a couple questions, Your
25 Honor.

REDIRECT EXAMINATION

BY MR. PRITIKIN:

Q Ms. Ochs, do you think the Marvell and the Motorola 802.11 patent portfolios are of equal value?

A No.

Q What's your view?

A Well, I haven't looked at the entire Motorola portfolio. We've only been focused on these two asserted patents. But those two patents are older. They don't have much life in them. They relate to the older versions of the standard. Our portfolio is very valuable. We're very active in the standards body. The patents we are getting now have direct applicability to the standards and they have a long life ahead of them.

Q And why, then, were you willing to propose a royalty-free cross-license?

A I think there are some at Marvell who would object and might think that Motorola should be paying us. But given that Microsoft made this request and they're a valuable customer, we thought if we started and proposed that they pay us money, that that wouldn't be viewed as negotiating in good faith. And we got internal authority to just propose royalty free. We thought that's more than fair, even if perhaps we could, you know, get them to be paying us for our portfolio, we have not traditionally asserted patents affirmatively. We

1 use them only defensively.

2 Q Now, regardless of whether you did or you did not have an
3 indemnity obligation to Microsoft, did you believe that
4 Marvell was entitled to a license from Motorola on RAND terms
5 if it asked for one?

6 A As I understand RAND, it means you provide that license to
7 a party that asks. So, yes.

8 MR. PRITIKIN: Nothing further, Your Honor.

9 MR. PALUMBO: No questions, Your Honor.

10 THE COURT: Just a couple of questions.

11 EXAMINATION

12 BY THE COURT:

13 Q Other than the 802.11 WiFi connectability, what other
14 functions do the Marvell chips perform?

15 A Those particular chips are pretty focused on just doing
16 WiFi.

17 Q We heard some testimony earlier that was helpful in
18 clarifying this question. If you practice the 802.11
19 standard, do you need to license all of the standard
20 essential patents, or just some of them, if you're Marvell?

21 A So, you know, we take the letters of assurance to mean
22 that if we determine that we need a license, we will be able
23 to obtain one on RAND terms. But, you know, business being
24 what it is, we don't affirmatively go out and assess all
25 third-party patents to see which ones we need a license to.

1 Q Did you hear the testimony in regards to profiles?

2 A No, I wasn't in the courtroom.

3 Q If I understood the testimony, a profile would be, you're
4 practicing a standard within a particular area, and,
5 therefore, you might not need to get a license of all
6 industry-essential patents that are included in the standard.

7 Would that conform to your understanding?

8 A So, my understanding of 802.11 is that it enables one to
9 provide interoperability with respect to a communications
10 system. So I've not heard this term "profiles" before. It
11 may be that, you know, a particular party has narrower
12 patents that don't relate to something that is specifically
13 called out in the standard, but might relate to a particular
14 implementation that people think is a nice way of
15 implementing the standard, but it's not required by the
16 standard. I'm just speculating as to what this testimony
17 might have been about.

18 Q The following questions assume, if you know, you may well
19 not, who are Marvell's competitors for this particular chip?

20 A So, WiFi parts are largely commodity parts. And our main
21 competitors are Intel, Broadcom and Atheros, which is now
22 part of Qualcomm. And in the Asian markets there's some
23 competition from companies like Media Tech or Real Tech,
24 which I think has just been acquired.

25 Q Is the pricing for these chips, because they're quantity

1 chips, roughly similar?

2 A They have to be very close. It's very competitive.

3 Q Do you know if any of your competitors have licensing
4 agreements with Motorola for the 802.11 standard?

5 A I'm not familiar with whether they have them with
6 Motorola. But customers are very interested in what patents
7 are cleared when they make a decision about whose chips to
8 buy. So we all know at least what's publicly available about
9 our competitors.

10 THE COURT: All right. Thank you. Anything further,
11 counsel?

12 MR. PRITIKIN: No, Your Honor.

13 THE COURT: Mr. Palumbo?

14 MR. PALUMBO: No, Your Honor. Thank you.

15 THE COURT: You may step down. Thank you very much.

16 Mr. Pritikin, we are adjourning at 3 o'clock today to
17 accommodate another sentencing. Do you want to call your
18 next witness or add seven minutes to your lunch hour?

19 MR. PRITIKIN: I think we might as well keep moving,
20 if that's acceptable to the court. Microsoft calls, as its
21 next witness, Dr. Michael Orchard.

22 MICHAEL ORCHARD

23 Having been sworn under oath, testified as follows:

24 THE CLERK: Will you state your name for the record
25 and spell your last name, please?

1 THE WITNESS: My name is Michael Orchard,
2 O-R-C-H-A-R-D.

3 MR. JENNER: Your Honor, a matter of clarification.
4 It's a little unusual. Mr. Pritikin and I agree it might be
5 beneficial for the court, in light of the questions you asked
6 the prior witness, if we, by agreement, explain to the court
7 that the profiles you inquired about with respect to 802.11,
8 the profiles -- if this is not clear -- the profiles only
9 apply to the other standard, the H.264. And there are not
10 profiles in 802.11. That may be the reason that the witness
11 was confused. Profiles don't apply to 802.11. I think we
12 agree on that.

13 MR. PRITIKIN: Your Honor, we've been jumping back
14 and forth in the interest of accommodating witnesses.
15 Normally we would have done H.264 and then done 802.11
16 separately.

17 MR. JENNER: I just want to help avoid confusion.

18 MR. HARRIGAN: One other minor item, Your Honor.
19 You'll recall Mr. Glanz's testimony about the slides that
20 were presented in July of 2003, and those exhibits, they have
21 the profiles in them. They describe what the two main
22 profiles are.

23 THE COURT: Thank you.
24

25 DIRECT EXAMINATION

1 BY MR. PRITIKIN:

2 Q Professor Orchard, could you look at Exhibit 1493 in the
3 binder that you have. Can you identify that as a copy of
4 your curriculum vitae?

5 A I'm not finding 1493 here. I'm sorry. Yes, it is.

6 MR. PRITIKIN: And Microsoft offers 1493, Your Honor.

7 THE COURT: Any objection?

8 MR. ROWLAND: No objection.

9 THE COURT: It's admitted.

10 (Exhibit No. 1493 was admitted into evidence.)

11 Q Where are you currently employed?

12 A I'm a Professor in the Department of Electrical
13 Engineering at Rice University.

14 Q What courses do you teach?

15 A I teach courses in digital signal processing, digital
16 image processing, and related courses, oftentimes with a
17 focus on data compression.

18 Q What is your educational background?

19 A I received my Ph.D. from Princeton University and my
20 bachelor's from San Diego State University. And in between I
21 have two master's, one from San Diego State University, and
22 one from Princeton, all of them in electrical engineering.

23 Q What experience do you have in the field of digital signal
24 processing and image and video processing?

25 A I worked in digital signal processing, before going for my

1 Ph.D., at Scientific Atlanta. And since my Ph.D., I've done
2 consulting at AT&T Bell Labs, AT&T Laboratories, after the
3 split-up, as well as Slumbershay, Flextronics, and several
4 other companies, NEC Institute.

5 Q Briefly, what types of research have you done in this
6 area?

7 A My research has primarily been focused on image and video
8 compression. And, in general, other questions in image and
9 video processing.

10 Q Have you received any honors or awards for your work in
11 the field of video compression?

12 A I have been named a fellow of the IEEE for contributions
13 in image and video compression.

14 Q Were you here during the testimony of Dr. Sullivan?

15 A Yes, I was.

16 Q And there was testimony about the development of H.264.
17 Did you follow the work of VCEG and the JVT during the
18 development of H.264?

19 A Yes, I followed it quite closely.

20 Q Did you personally make any proposals?

21 A Yes. Some of the activity I did as a consultant with AT&T
22 Labs was proposed at several VCEG meetings.

23 Q Did you have conversations with Dr. Sullivan during the
24 period of development?

25 A Yes, I did, both associated with that proposal, and other

1 times, because we were colleagues, we co-authored papers
2 before.

3 Q Have you prepared a demonstrative summarizing the
4 conclusions that you have reached in this case, Professor
5 Orchard?

6 A Yes, I have.

7 Q Could we put up 4017. Is this a summary of your
8 conclusions?

9 A Yes, it is.

10 Q And before we adjourn for lunch, could you tell the court,
11 briefly, what those conclusions are, and then we'll go into
12 them in more detail after lunch.

13 A Okay. First, maybe the high-level conclusion is that as a
14 -- taken in perspective of the grand total of contributions
15 that led to the advances in H.264, the Motorola patents are
16 really a small, very slight sliver of those of the
17 technological contributions. A large portion of those
18 patents relate to interlaced coding, which is not very
19 important in H.264.

20 Two other patents that are unrelated to interlaced, one of
21 them is expired and one is about to expire. And for all of
22 the patents, there were alternatives that were available to
23 JVT, and they were quite reasonable alternatives. And, in
24 particular, the Motorola patents have little significance to
25 the products that Microsoft -- that I reviewed for Microsoft.

1 MR. PRITIKIN: Your Honor, can we do one housekeeping
2 item before we adjourn for lunch?

3 THE COURT: Sure.

4 MR. PRITIKIN: There will be testimony about the
5 various Motorola and the Microsoft H.264 patents. We would
6 like to move the admission of those. I don't believe there's
7 any objection to them. And I could simply read into the
8 record the exhibit numbers of those patents.

9 THE COURT: As long as you promise to go slowly. Any
10 objection?

11 MR. ROWLAND: No, Your Honor.

12 MR. PRITIKIN: The Motorola patents are 265, 266,
13 268, 270 to 278, 280 to 283.

14 And the Microsoft patents are 796, 798, 800, 813 to 818.
15 822 to 825. 827 to 831. 833. 840 to 842. 846 to 848. 854
16 to 857. 868 to 870. 884. 890. 893. 895. 906. 924.
17 1411 and 1669.

18 (Exhibit Nos. 265, 266, 268, 270, 278, 280, 281, 282, 283,
19 796, 798, 800, 813, 814, 815, 816, 817, 818, 822, 823, 824,
20 825, 827, 828, 829, 830, 831, 833, 840, 841, 842, 846, 847,
848, 854, 855, 856, 857, 868, 869, 870, 884, 890, 893, 895,
906, 924, 141 and 1669 were admitted into evidence.)

21 THE COURT: All right. With that exciting bit of
22 testimony. We'll break for lunch. We'll be in recess until
23 1:00 p.m., counsel. Recall that we're going to take a hard
24 stop at 3 o'clock. Because I have a sentencing. We'll be in
25 recess.

1 (Recess.)

2 THE COURT: Counsel, before we begin, due to some
3 developments in my criminal calendar, it appears that the
4 sentencings that I have scheduled for Monday won't be going
5 forward for various reasons, in which case we will be able to
6 start at 9:00. That should allow you to get finished up by
7 Tuesday at the end of the afternoon. I will give you a
8 definitive answer hopefully by the end of the day. For
9 planning purposes, that appears to be where we are headed.

10 MR. PRITIKIN: Your Honor, we are doing our best to
11 get these witnesses on and off. Professor Orchard has a
12 class he needs to teach tomorrow morning. We were hoping to
13 make faster progress than we have. It is possible that we
14 will not finish the direct and the cross by 3:00 this
15 afternoon. We have indicated that we are perfectly happy --
16 He will be here next week --

17 THE COURT: Fine, we will separate it.

18 MR. PRITIKIN: As I understand it, it is okay with
19 Mr. Jenner if they complete their cross on Monday or Tuesday.

20 MR. JENNER: It looks like we will have similar
21 classroom scheduling problems. We hope everybody will
22 accommodate each other in terms of flipping witnesses around.

23 THE COURT: If they don't, I will. Jurors, just as a
24 trial point, when I can say to the jury, "The lawyers are
25 trying to use your time wisely, this is out of sequence, you

1 may be wondering what's going on," they love you for it.
2 They think you are being respectful of them.

3 MR. JENNER: We will cooperate.

4 By Mr. Pritikin:

5 Q Professor Orchard, before we get into the details about
6 the opinions that you have expressed, I want to ask you some
7 questions about video -- interlaced video. First, what is
8 video compression?

9 A Video compression is the processing of a video sequence in
10 order to transform it into a file size, a set of bits, that
11 is smaller than the original collection of pixel values.

12 Q Now, why is it necessary to compress modern digital video?

13 A Because modern digital video, particularly of high
14 definition type video, has just immense amounts of data. It
15 has typically something on the order of about 20 gigabytes of
16 data per minute. If you were to use your home three gigabits
17 per second -- pardon, three megabits per second, a typical
18 internet link, it would take you about 15 hours to download
19 one minute of video.

20 Q We have heard these terms "encoding" and "decoding." Can
21 you explain briefly what those are?

22 A Encoding is the process of operating on the original video
23 and turning it into a smaller file. Decoding is operating on
24 the smaller file and turning it back into the original, or
25 some approximation to the original video.

1 Q And what are "coding tools"?

2 A Coding tools are individual tools that are used in the
3 process of coding. And they are a typical coding algorithm,
4 coding standard or compression standard. There are many,
5 many different types for different purposes, all that
6 contribute a little bit to the efficiency, to the ability to
7 shrink the size, and together they do a very good job.

8 Q Have you prepared a demonstrative to help explain the
9 difference between progressive and interlaced video?

10 A Yes, I have.

11 Q Could we take a look at Exhibit 4019?

12 Again, the court has heard quite a bit about this, so I
13 don't want to belabor it.

14 Can you explain briefly what the difference is between
15 progressive and interlaced video?

16 A Progressive video is perhaps the most natural to
17 understand. Video is a sequence of images. Each image is
18 something like you might take on your video camera.

19 Progressive video is just video that has a sequence of
20 pictures, like from your camera, shown on the left there.

21 Interlaced video chooses to take separate pictures, one of
22 all the even lines of a picture and the other of the odd
23 lines. And they are taken at different times. So in this
24 picture you see the cannon. One takes it before the ball
25 leaves the cannon, and the other one after. They are

1 slightly off in time.

2 Q Now, is the format, progressive or interlaced, initially
3 determined when the video is captured?

4 A Absolutely, yes.

5 Q And does progressive video stay progressive?

6 A Progressive video always stays progressive.

7 Q Now, if it is captured as interlaced video, can it be
8 converted to progressive?

9 A It can be and often is, and often has to be, particularly
10 if eventually it is going to be displayed on a progressive
11 screen.

12 Q Is progressive video ever converted back to interlaced?

13 A Never.

14 Q Now, take something like Windows, does it ever convert a
15 progressive video to interlaced?

16 A No, it does not.

17 Q What are the terms "frame coding" and "field coding"?

18 A Frame coding is the application of any of the coding tools
19 to the frame itself. So that's the entire picture. Field
20 coding is the application of usually the same tools to each
21 of the fields, that is, each of either the even lines or the
22 odd lines of the picture.

23 Q And we have heard the term "interlaced coding tools."
24 What do those refer to?

25 A Interlaced coding tools are tools designed to increase the

1 efficiency of coding interlaced material.

2 Q Is field coding used with progressive video?

3 A No, it is not.

4 Q What was the origin of interlaced video?

5 A Interlaced video was a technique back in the day when we
6 had analog televisions, like we all -- most of us know from
7 20 years and before. The way that the image information is
8 scanned on the screen is driven by the format of the data.
9 And so in old screens, it was found that by only showing the
10 even lines, and then later only showing the odd lines, you
11 end up sending image information to the screen at a faster
12 rate, and it made the eye-perceived motion more continuously
13 than if you just spent the time to send the whole picture.

14 Q Now, is it still necessary to use interlaced video?

15 A No, it is not, because now the rate at which image
16 information goes to the screen is determined usually --
17 almost entirely by your television set or your computer, and
18 they usually send it much faster than the rate at which the
19 format of the video was taken.

20 Q Is the display in a modern computer or television
21 interlaced or progressive?

22 A Virtually all displays are progressive.

23 Q How common is interlaced video today?

24 A It is very rare. There is interlaced video that was taken
25 -- like archived video, but it is rare and it is becoming

1 increasingly more rare.

2 Q Could you look -- Let's look at Demonstrative
3 Exhibit 4020. Have you prepared a demonstrative explaining
4 some of the reasons for the decline of the interlaced video?

5 A Yes, I have, just in simple terms. First, interlaced scan
6 of video is a solution to a problem that no longer exists.
7 Secondly, today's displays are virtually all progressive.

8 And, finally, interlaced video causes problems.
9 Interlaced video is not as compressible. It takes more bit
10 rate. Modern algorithms that try to detect objects or do
11 fancy things have real difficulty dealing with the interlaced
12 format.

13 Q Now, what was the first video compression standard that
14 contained interlaced coding tools?

15 A That would be MPEG-2, was the first one intended to be
16 operated on interlaced video, and therefore it developed the
17 tools that we use still today.

18 Q And approximately when was that approved?

19 A It was about '92, '91, that the tools were proposed. And
20 eventually the standard was standardized in '95.

21 Q Can you turn to Exhibit 1479 in your exhibit book? Is
22 this a copy of the MPEG-2 standard?

23 A Yes, it is.

24 MR. PRITIKIN: Microsoft offers Exhibit 1479.

25 MR. ROWLAND: No objection, your Honor.

1 THE COURT: 1479 is admitted.

2 (1479 admitted.)

3 By Mr. Pritikin:

4 Q Does H.264 also have some specialized tools for coding
5 interlaced video?

6 A Yes, it does.

7 Q You testified earlier this morning Dr. Sullivan said the
8 H.264 standard would permit you to field code a progressive
9 video. Do you recall that testimony?

10 A I believe so, yes.

11 Q Now, are interlaced coding tools used for progressive
12 video?

13 A No, they are not.

14 Q Is this something that people typically do or commonly do?

15 A It is not common. It is -- it generally would be unwise
16 to do -- it would be a mistake to do that.

17 Q Now, of the 16 Motorola H.264 patents, how many of those
18 pertain only to interlaced video?

19 A I believe 14 of them do.

20 Q And do they claim various interlaced coding tools?

21 A Yes, they do.

22 Q And are they used in the encoding or decoding of
23 progressive video?

24 A No, they are not.

25 Q Now, there is a timeline on the board behind you that

1 Dr. Sullivan testified about. I want to ask you about this
2 period before the formation of the JVT when the VCEG was
3 meeting. Approximately how many times did VCEG meet?

4 A I believe there were 14 VCEG meetings.

5 Q And were reports prepared of the meetings?

6 A Yes, there were.

7 Q Have you reviewed them all?

8 A I have.

9 Q What is a "contribution document"?

10 A It is a document that is submitted to one of the meetings
11 for a wide variety of purposes, either to propose some new
12 technology, to study some technology that had already been
13 proposed, to report about the progress of various areas of
14 the development compared to other activities that might be
15 going on elsewhere. There is a wide variety of reasons for
16 contribution.

17 Q Are some substantive and some nonsubstantive?

18 A Yes, some are substantive, and some are not.

19 Q Now, have you looked at all of the contribution documents?

20 A I haven't looked at all of them, but I have reviewed all
21 of the meeting minutes, which contain summaries of all of
22 them. And I have read all of the summaries.

23 Q And how many contribution documents were submitted by
24 Motorola to VCEG prior to the formation of the JVT?

25 A Actually, I think there was one submitted to VCEG, but

1 related to another standard, I believe.

2 Q Let's focus on the period after the formation of the JVT
3 in 2001. Approximately how many times did the JVT meet?

4 This is before the first H.264 standard.

5 A Before the standard, it was something like eight meetings.

6 Q And, again, have you reviewed all of the meeting reports?

7 A Yes, I have.

8 Q And are the contribution documents referenced in the
9 meeting reports?

10 A Yes, they are, and summarized.

11 Q And you have been through them; is that correct?

12 A Yes, I have.

13 Q Approximately how many different companies made
14 nonadministrative contributions to the H.264 standard?

15 A I believe there is something like 170-something.

16 Q Approximately how many such contributions in total were
17 made to the JVT?

18 A There were 2300, or some number like that.

19 Q How many contribution documents submitted by Motorola
20 contained actual Motorola proposals?

21 A There was a group of maybe 25 that contained proposals,
22 and then later studied the proposals, and then talked about
23 tweaks on the proposals, and so that were related to the
24 proposals, 25.

25 Q Of the 25, how many of those related only to interlaced

1 video coding?

2 A I believe there were 18.

3 Q And what did the other seven relate to?

4 A They related to a proposal later in the process to
5 incorporate wavelength coding, which was never adopted.

6 Q Did all of Motorola's contribution documents that
7 contained proposals that were accepted by the JVT pertain to
8 interlaced coding?

9 A Yes, that's true.

10 Q Now, let's turn to Microsoft. Did Microsoft submit
11 contributions to the JVT?

12 A Yes, they did.

13 Q And before we get into that, can you explain to the court
14 what are the core video coding components of the H.264
15 standard?

16 A What I would consider to be the core components are the
17 same core components of most previous standards. They are
18 prediction, transform, quantization and then entropy coding.

19 Q Are these generally recognized in the literature as the
20 core areas?

21 A Yes. Generally any tech store or tutorial on the subject
22 would start with a block diagram of those four blocks.

23 Q Did Microsoft submit contributions in the area of
24 prediction?

25 A Yes, they did. They had contributions that fundamentally

1 changed the way prediction was made compared to earlier
2 standards, and contributed to improvements to the standard
3 due to those changes.

4 Q Were those contributions related to interlaced video?

5 A No, they weren't.

6 Q Did Microsoft submit contributions that were accepted in
7 the area of transform?

8 A Yes, they submitted contributions pertaining to the actual
9 transform that is used almost all the time in H.264. And the
10 eventual transform that is standardized is a Microsoft
11 transform.

12 Q Is that limited to interlaced video?

13 A No, it is not.

14 Q Did Motorola make any contributions that you believe
15 substantively changed how prediction, transform, quantization
16 or entropy coding is done in H.264?

17 A No, none of Motorola's contributions changed the way any
18 of those core functions were performed compared to previous
19 standards.

20 Q Now, let's shift gears and talk about the patents that are
21 essential to the H.264 standard. Are you familiar with the
22 MPEG LA AVC patent pool?

23 A Yes, I am.

24 Q And what do the patents in the pool relate to?

25 A They relate to all of the functionality -- a wide range of

1 functionalities in H.264. They are all aspects of
2 technologies that are needed to practice H.264.

3 Q Does MPEG LA determine whether patents of its members are
4 essential to H.264?

5 A Yes, they do. They have an assessment process where you
6 submit a patent, and they determine if it is essential.

7 Q Could you turn, please, to Exhibit 590? And what is
8 Exhibit 590?

9 A 590 is a chart -- a list as of February 1st, 2011 of
10 patents that have been deemed essential by MPEG LA. And they
11 are cataloged by the area, the general topic that they
12 address, and the standard, and are associated with particular
13 sections of the standard in which these patents are
14 practiced.

15 Q Now, are these all of the patents that are in the pool?

16 A No, they are not. They are the ones that have been
17 cataloged in this way.

18 Q Approximately how many are in Exhibit 590?

19 A Seventeen hundred, or something on that order.

20 Q And what is your understanding of the total number of
21 patents in the pool?

22 A I understand it is a number somewhere around the number
23 2500.

24 MR. PRITIKIN: Microsoft moves for the admission of
25 590.

1 MR. ROWLAND: No objection, your Honor.

2 THE COURT: 590 is admitted.

3 (590 admitted.)

4 By Mr. Pritikin:

5 Q Looking back at 590, where just 1700 of the patents are
6 listed, this goes on for some 80 pages; is that correct?

7 A Yes.

8 Q And is there a wide variety of different technologies
9 reflected here?

10 A In my assessment, and I have reviewed these, it covers --
11 there are patents related to virtually all of the --
12 certainly the core components, and even aspects of all the
13 features of those core components in the standard.

14 Q Would you turn back to Exhibit 589, please? Is this a
15 listing of all of the patents as of May 7th, 2012 that have
16 been deemed essential by the MPEG LA pool in their part of
17 the pool?

18 A Yes, it is.

19 MR. PRITIKIN: Microsoft offers Exhibit 589.

20 MR. ROWLAND: No objection, your Honor.

21 THE COURT: 589 is admitted.

22 (589 admitted.)

23 By Mr. Pritikin:

24 Q Now, as a part of your work on this matter, what have you
25 done to gain some understanding of the patents that are in

1 the MPEG LA pool?

2 A Well, there are so many patents here, it was beyond my
3 abilities to go and examine all of them closely. But I have
4 looked and verified that there are patents associated with
5 every aspect that is important in the standard. And that --
6 I went to various ones of those and checked individual
7 patents. There are many of them that are quite fundamental
8 that disclose the V-essential innovation that really added a
9 lot of performance to H.264 in that particular area.

10 Q Now, based on work that you have done, and Exhibit 590,
11 how would you characterize the patents in the MPEG LA pool?

12 A Broad, covering all fundamental aspects, and rich.

13 Q In addition to the 2500 or so patents that are in the
14 MPEG LA pool, are there additional patents that are essential
15 to the H.264 standard?

16 A Yes, there are.

17 Q Could you turn to Exhibit 1544, please? Can you tell us
18 what this document is?

19 A It is a summary document that I prepared of the U.S.
20 patents essential to H.264. So it contains a list of the
21 U.S. patents. There are 328 of them. It contains a list of
22 the companies that are participating in MPEG LA. It consists
23 of a chart -- bar chart of the number of patents in the pool
24 held by -- U.S. patents in the pool held by the various
25 companies.

1 Q You have also shown Motorola on there?

2 A That's right. Motorola has been added to that, just to
3 put it into context. It shows a list of the topic areas
4 spanning all the fields of the H.264 standard for which there
5 are patents. And then the last is a summary of the patents
6 that have been declared essential to the ITU or the ISO by
7 non-MPEG LA members.

8 MR. PRITIKIN: Microsoft offers Exhibit 1544, your
9 Honor.

10 MR. ROWLAND: No objection.

11 THE COURT: 1544 is admitted.

12 (1544 admitted.)

13 By Mr. Pritikin:

14 Q What, if any, conclusions do you draw from this as to the
15 overall significance of the Motorola H.264 patents and H.264
16 implementations?

17 A In my assessment, the Motorola patents are restricted to a
18 small, not very significant feature of the overall H.264,
19 let's say, technology base. And within that -- within that
20 feature, which are those features associated with interlaced,
21 they are really quite minor, and they play in the big picture
22 quite a minuscule role in the technologies associated with
23 H.264.

24 Q Now, let's put all of the patented technology to one side
25 for a moment. Is there other technology that is embodied in

1 H.264 that is not covered by any active patents?

2 A I think that is something that is not appreciated by many,
3 that perhaps -- Yes. The answer to your question is yes, in
4 that it is quite significant. As Gary said earlier today,
5 the starting point, which started with many of the core
6 innovations of H.264, was contributed by Telenor, which
7 openly stated its intention that this be available to
8 everybody without patent restrictions.

9 Q Let's turn now to the Motorola patents and talk about
10 those with a little more specificity. You understand that
11 there are 16 Motorola patents that Motorola has claimed are
12 essential to H.264?

13 A Yes, that's what I understand.

14 Q And how many of those are limited to interlaced coding
15 tools?

16 A Probably 14 of them are limited to interlaced coding
17 tools.

18 Q We will talk about those first, and then we will go to the
19 other two. Have you prepared a demonstrative categorizing
20 Motorola's 14 interlaced patents?

21 A Yes, I have.

22 Q Could we look at Exhibit 4018? And if we take Motorola's
23 interlaced coding tool patents, how many categories have you
24 put them into?

25 A They fit into three categories: The first, adaptive

1 frame/field coding, a second category of alternate scan path,
2 and the third of motion vector prediction. Three blocks for
3 motion vector prediction.

4 Q Let's look first at adaptive frame/field coding. Some of
5 this I want to actually get on the record, the numbers and
6 things. You have two -- Is that two different flavors of
7 adaptive frame/field coding?

8 A Yes, MBAFF and PICAFF are the two types.

9 Q Let's start with MBAFF. What is the relationship to those
10 patents listed there?

11 A All of these patents are derivatives of the same starting
12 application, and they all share the same specification.

13 Q And could you just read into the record the numbers of the
14 patents you have categorized as the MBAFF patents?

15 A They would be Exhibits 271, 272, 273, 274, 275, 276, 277
16 and 278.

17 Q Is there a relationship among the three PICAFF patents?

18 A Yes, there is. They also share the same specification and
19 derive from the same original.

20 Q Have you categorized Exhibits 280 to 282 as the PICAFF
21 patents?

22 A Yes, I have.

23 Q Let's go over to the alternate scan path patents. Is
24 there a relationship between the two patents you listed
25 there?

1 A Yes, there is. They also share the same specification.

2 Q And those are Exhibits 265 and 266?

3 A That is correct.

4 Q And then you've got a third category, Exhibit 268; is that
5 correct?

6 A That's correct.

7 Q Now, as a part of your work on this matter, have you
8 analyzed alternatives that were available to the JVT if it
9 had decided not to include technology that is covered by the
10 Motorola patents?

11 A Yes, I have.

12 Q And were there acceptable alternatives for all of the
13 Motorola technology?

14 A Yes, there were.

15 Q Do you believe that the adoption of the alternatives would
16 have degraded the performance of standard complying
17 implementation?

18 A No, I don't believe it would have.

19 Q Have you identified publications and documents disclosing
20 the alternatives that you have identified?

21 A Yes, I have.

22 Q Could you turn to Exhibit 1550? Is 1550 a summary you
23 prepared, Professor Orchard?

24 A Yes, it is.

25 Q Can you tell us what you have shown here for each of the

1 Motorola patents?

2 A For each of the patents listed on the left I have shown
3 the prior art documents representing alternatives.

4 MR. PRITIKIN: Microsoft moves the admission of 1550.

5 MR. ROWLAND: Sorry, your Honor. We don't see the
6 binder. We do have an objection to this exhibit. This
7 really isn't properly characterized as a summary. It is more
8 of a written opinion.

9 THE COURT: Mr. Pritikin, which binder is this in?

10 MR. PRITIKIN: Your Honor, this would be --

11 THE COURT: I have found it. Thank you. I will
12 permit it as a demonstrative. The objection is overruled.

13 (1550 admitted as demonstrative.)

14 By Mr. Pritikin:

15 Q Now, let's talk a little more specifically about the
16 various Motorola patents. Let's start with what you said was
17 adaptive frame/field coding. What is adaptive frame/field
18 coding?

19 A Adaptive frame/field coding is simply the idea of allowing
20 a choice to be made as to whether a particular piece of
21 interlaced material would be treated as a full frame and
22 coded that way, or as two fields encoded that way.

23 Q Is this an interlaced coding tool?

24 A Yes, it is.

25 Q And did Motorola invent adaptive frame/field coding?

1 A No, they did not.

2 Q Let's take a look at one of the demonstratives,
3 Exhibit 4021. Is this a demonstrative you prepared to
4 explain PICAFF and MBAFF?

5 A Yes, it is.

6 Q And could you explain to the court what these coding
7 techniques are?

8 A Well, as I said, adaptive field/frame coding is just the
9 choice of whether something will be coded as a field or a
10 frame. And on the left is one version of that or flavor of
11 that in which that choice is made for the entire picture. So
12 the picture is either coded as a full picture or its lines
13 are coded. That is PICAFF, picture adaptive field/frame
14 coding.

15 The other is to allow that choice to be made for each
16 block. Shown on the right is a block -- macroblock,
17 actually, and we can choose for that macroblock to be coded
18 as a frame, or for the even lines of that macroblock to be
19 coded.

20 Q Now, have you prepared a demonstrative showing -- or
21 comparing the type of MBAFF that had been proposed by
22 Motorola, and is in the H.264 standard, with earlier types of
23 MBAFF?

24 A Yes, I have.

25 Q And let's look at Exhibit 4022. Can you explain what we

1 are looking at here?

2 A This is showing a version -- two versions of that
3 macroblock adaptive frame/field choice. On the left is the
4 flavor of that that was used in MPEG-2, where for each block
5 shown there a choice can be made to be treating it either as
6 a frame or as two fields, the lines separately -- even and
7 odd lines separately.

8 On the right is what Motorola proposed, to take two of
9 those blocks and to make the same choice on two blocks
10 together, rather than on each block individually.

11 Q Can we refer to that as paired macroblock MBAFF?

12 A Yes.

13 Q The use of paired macroblock MBAFF, was that adopted as a
14 part of the H.264 standard?

15 A Yes, it was.

16 Q Is the MBAFF that is used in H.264 used for progressive
17 video?

18 A No, it is not. MBAFF, in general, is not.

19 Q Now, what alternatives -- Let's refer back to
20 Exhibit 1550. Can you tell us what alternatives were
21 available to the JVT instead of using the paired macroblock
22 MBAFF?

23 A Well, the natural alternative would have been to use the
24 MBAFF that was used in MPEG-2, the single macroblock MBAFF.

25 Q And had that been proposed to the JVT?

1 A Yes, it was proposed to the JVT before Motorola started
2 submitting proposals.

3 Q Could you turn to Exhibit 782 and 785 in your binder? And
4 are these proposals to VCEG?

5 A Yes, they are. They are both proposals, one from Peter
6 Borgwardt, and the other from interested parties in the
7 September meeting of 2001.

8 MR. PRITIKIN: Microsoft offers Exhibit 785.

9 THE COURT: 785?

10 MR. ROWLAND: No objection, your Honor.

11 THE COURT: 782?

12 MR. PRITIKIN: 782 and 785.

13 MR. ROWLAND: No objection.

14 THE COURT: They are admitted.

15 (782 & 785 admitted.)

16 By Mr. Pritikin:

17 Q Does using the paired MBAFF, as it found its way into the
18 H.264 standard, perform better than using a single macroblock
19 MBAFF as it was done in MPEG-2?

20 A I have not seen any tests suggesting that.

21 Q Now, shortly before Motorola proposed the use of this
22 paired MBAFF for H.264, did Motorola go out and file a patent
23 application on that?

24 A Yes, they did.

25 Q And then after they did that, did they encourage the JVT

1 to adopt the use of the paired macroblocks that they had
2 filed a patent application on?

3 A Yes, they did.

4 Q Would you turn to Exhibit 656? Is this a Motorola
5 contribution, dated January 21, 2002, to the JVT?

6 A Yes, it is.

7 MR. PRITIKIN: Microsoft offers Exhibit 656.

8 MR. ROWLAND: No objection, your Honor.

9 THE COURT: It is admitted and may be published.

10 (656 admitted.)

11 By Mr. Pritikin:

12 Q Now, in this document was Motorola urging the JVT to use
13 its paired macroblock MBAFF approach?

14 A Yes, it was.

15 Q And did Motorola compare its paired macroblock MBAFF with
16 the single macroblock MBAFF that had been used in MPEG-2?

17 A No, it never did.

18 Q Would that, in your opinion, have been the fairest
19 comparison?

20 A Yes, I think that would have to be considered the next
21 best alternative.

22 Q What did they compare it to?

23 A They compared their brand with a pair-wise macroblock
24 adaptive field/frame coding with not using any macroblock
25 adopted field/frame coding or making a choice on the picture

1 level, so not allowing the choice to be made on a macroblock
2 level.

3 Q Would the things they compared it to, in your opinion,
4 have been the next best alternative at the time?

5 A No, they would not be.

6 Q Could you look at Exhibit 2227? Is this a contribution
7 document from VideoTele?

8 A Yes, it is.

9 Q Dated October of 2002?

10 A That's correct.

11 MR. PRITIKIN: Microsoft moves the admission of
12 Exhibit 2227.

13 MR. ROWLAND: No objection, your Honor.

14 THE COURT: 2227 is admitted.

15 (2227 admitted.)

16 By Mr. Pritikin:

17 Q And this reports on some MBAFF testing also?

18 A Yes, it does.

19 Q And in this document was the paired macroblock MBAFF being
20 compared with the version of MBAFF and MPEG-2 or with
21 something else?

22 A It was not being compared to any other version of MBAFF,
23 it was being compared to picture-level frame/field coding.

24 Q Let's turn to the subject of the PICAFF patents. Does the
25 use of PICAFF pre-date the Motorola patents?

1 A Yes, it does. It was a fixture in MPEG-2.

2 Q By the way, let me go back to MBAFF for just a second.
3 You had listed, I think, eight different MBAFF patents. Can
4 you tell us at a broad level what they claim?

5 A The first one, the '596 patent, claims what we just talked
6 about, the pair-wise MBAFF. And all of the others claim
7 using that pair-wise MBAFF in a coder with other elements
8 that are found in H.264. All of the other elements are
9 elements that other people invented and other people
10 contributed to H.264.

11 Q Now, returning to PICAFF. Can you tell us there, again at
12 a high level, what is claimed in the Motorola PICAFF patents?

13 A What is claimed in the Motorola PICAFF patents is to
14 combine PICAFF, as it was used in MPEG-2, with, again,
15 various other elements of the H.264 patent standard that were
16 contributed by other researchers from other companies.

17 Q Again, I am going to ask you, were alternatives available
18 to the JVT instead of using the PICAFF techniques that are
19 claimed in the Motorola patents?

20 A A natural alternative would have been to use MBAFF as it
21 was in MPEG-2.

22 Q And if you look back at Exhibit 1550, can you identify for
23 us the documents that disclose the alternative?

24 A Yes, they would be Exhibits 782 and 785, the VCEG
25 documents, that describe those alternatives.

1 Q What about Exhibit 1479, the MPEG-2 standard?

2 A Yes, Exhibit 1479 would be also included as --

3 Q Are there any performance benefits in using PICAFF as
4 proposed by Motorola rather than using single macroblock
5 MBAFF?

6 A No. To the contrary, all of the tests that were done by
7 anybody I think showed that PICAFF did not do as well as
8 MBAFF.

9 Q And, again, did Motorola go out and file patent
10 applications on the PICAFF that it was proposing?

11 A Yes, they did.

12 Q Now, let's turn to the third -- the second category of
13 interlaced video technology that you talked about, the
14 alternate scan paths. Can you tell us, what do the alternate
15 scan path patents claim?

16 A They claim ways of scanning the output of the transform
17 coefficients in the H.264 algorithm in a way so as to do well
18 for interlaced content.

19 Q Do they apply to progressive video?

20 A No, they do not.

21 Q Did Motorola invent the use of scan paths?

22 A No, they did not. Scan paths have been used in all of the
23 video coding standards that I know of back to the mid '80s.

24 Q Is there a term used to describe the scan path that is
25 used with progressive video?

1 A The progressive video is almost always scanned with the
2 zig-zag scan, it is called.

3 Q Were there alternatives available to the JVT instead of
4 using the scan paths for interlaced video proposed by
5 Motorola?

6 A Yes, there were.

7 Q Could you turn back to Exhibit 1550? Can you identify for
8 us the documents that disclose those alternatives?

9 A Well, the two patents in question are Exhibits 266 and
10 265. And one of them pertains to a four-by-four scan path,
11 and the other one pertains to an eight-by-eight scan path.
12 And the natural alternative to the four-by-four would have
13 been a scan path proposed by Sony prior to Motorola's
14 proposed -- or, actually, initial entry into the field of
15 scan paths. And it was proposed for four-by-four for the
16 H.264 standard.

17 Q And what exhibit numbers are the Sony scan path shown in?

18 A That would be Exhibit 653.

19 MR. PRITIKIN: Microsoft moves the admission of
20 Exhibit 653.

21 MR. ROWLAND: No objection, your Honor.

22 THE COURT: 653 is admitted.

23 (653 admitted.)

24 By Mr. Pritikin:

25 Q Now, for illustrative purposes, have you prepared a

1 demonstrative comparing the Sony four by four scan path with
2 the Motorola four-by-four scan path?

3 A Yes, I have.

4 Q Can we look at Exhibit 4023? And what is shown here?

5 A On the left is the Sony scan path. It is showing how one
6 scans the four-by-four array of coefficients from upper left
7 to bottom right. And on the right is the scan path of the
8 Motorola patent, again going from upper left to bottom right.

9 Q So if they are encoded with the scan path, then the
10 decoder has to know what the scan path is?

11 A Yes. It is very tightly coupled, so they have to agree to
12 use the same scan paths, otherwise they will mix up
13 coefficients.

14 Q So they have to have a common language, would that be fair
15 to say?

16 A Exactly. Yes.

17 Q How did the Sony scan path perform compared to the one
18 that had been proposed by Motorola and found its way into the
19 H.264 standard?

20 A As compared to the Motorola one, there were no direct
21 tests ever done. Both of them independently were shown to do
22 better -- modestly better than the zig-zag scan path.

23 Q So each was compared to the zig-zag scan path?

24 A That's right.

25 Q If you look at the results of those comparisons, how do

1 you compare the Sony with the Motorola?

2 A They are in the same neighborhood. They are -- I would
3 say that they are roughly equivalent, although the Sony --
4 the average performance of a Sony was better than the
5 Motorola.

6 Q Now, if the JVT had not wanted to use the Motorola scan
7 path, what would have been the next best alternative?

8 A I think the Sony scan path.

9 Q And so when Motorola urged the JVT to adopt its
10 four-by-four scan path, what did it compare that to?

11 A It compared it to what effectively is no alternate scan
12 path at all, or just using the zig-zag that progressive uses.

13 Q So Motorola didn't submit data to the JVT comparing its
14 scan path with the Sony scan path?

15 A No, it did not.

16 Q Would there have been, in your opinion, any significant
17 degradation of performance if the JVT had selected, for
18 example, the Sony scan path rather than the Motorola scan
19 path?

20 A There is no evidence to suggest that, in my opinion, there
21 would be, no.

22 Q Now, there are a couple of exhibits cited in Motorola's
23 trial briefs, Exhibits 2281 and 710. And I want to -- Could
24 you take a look at Exhibit 710? What's in Exhibit 710?

25 A 710 was a test done by Sony on the Motorola scan path --

1 alternate scan path.

2 Q And could you look at Exhibit 2281 and tell us what that
3 is?

4 A It is a test of scan paths done by researchers from Korea,
5 Samsung.

6 Q Of what? Of the Motorola scan path?

7 A Of the Motorola scan path.

8 Q So there was no head-to-head comparison of the Sony and
9 the Motorola scan paths given to the JVT?

10 A No, there were not.

11 MR. PRITIKIN: Microsoft moves the admission of 2281
12 and 710.

13 MR. ROWLAND: No objection, your Honor.

14 THE COURT: They are admitted.

15 (2281 & 710 admitted.)

16 By Mr. Pritikin:

17 Q There are a couple of other documents I want to ask you
18 about, Professor Orchard. Could you look at Exhibit 653? Is
19 this a test of the Sony scan path against zig-zag?

20 A Yes, it is.

21 Q And could you look at Exhibit 710? What is shown there?

22 A That is another test by the same group, of the Motorola
23 scan path.

24 Q Against zig-zag?

25 A Against zig-zag, yes.

1 Q And how did the results compare? I think you may have
2 covered this already.

3 A The Sony scan path, the average performance is better than
4 that of the Motorola scan path.

5 MR. PRITIKIN: Microsoft moves the admission of 610
6 and 653.

7 MR. ROWLAND: No objection.

8 THE COURT: They are admitted.

9 (610 & 653 admitted.)

10 By Mr. Pritikin:

11 Q Again, I want to ask you about these scan path proposals
12 that were put in by Motorola. Before they submitted the
13 proposal asking the JVT to adopt its scan paths, did they go
14 out and file patent applications covering that?

15 A Yes, they did.

16 Q Now, let's go back to Exhibit 4018 for a moment, the
17 demonstrative. Let's go over to the right-hand side. There
18 is a third patent here under the interlaced category,
19 Exhibit 268. Have you prepared a demonstrative explaining
20 what this patent claims?

21 A Yes, I have.

22 Q Is this referred to sometimes as the EIFRIG patent,
23 E-I-F-R-I-G?

24 A Yes, it is. That is the first offer, maybe the only
25 offer.

1 Q Let's take a look at Exhibit 4024. Can you explain to the
2 court what is shown here and what it is that the EIFRIG
3 patent purported to invent?

4 A On the left is the way that motion vectors are depicted
5 for the block that is indicated by the X. And in H.264, an
6 earlier standard, and even other standards, the motion vector
7 at the X is predicted by the three blocks that are shown
8 there on the left picture. The EIFRIG patent proposes for
9 interlaced video to predict the motion at the X by the three
10 same blocks, as you see, parroting the prior art.

11 Q I want to be sure I understand this, Professor Orchard.
12 Was the use of these three specific blocks claimed in the
13 EIFRIG patent?

14 A Yes, it was.

15 Q And was the use of these three specific blocks already
16 used before for progressive video?

17 A Yes, it was.

18 Q And so what Motorola did was to take those same three
19 blocks and, say, use them for interlaced video?

20 A That is right.

21 Q In your opinion, was there anything inventive or novel
22 about that?

23 A No, I would not consider that at all inventive. It is
24 quite trivial, both in value and originality.

25 Q Were there alternatives to the EIFRIG patent at the time

1 the H.264 standard was adopted?

2 A Yes. If we had to avoid these three blocks, we could have
3 chosen a different three blocks from the same neighborhood.

4 Q Would you look at Exhibit 611? What is Exhibit 611?

5 A It is the H.264 standard.

6 Q This is back from May of 1996?

7 A From May of 1996, yes.

8 MR. PRITIKIN: Microsoft offers Exhibit 611.

9 MR. ROWLAND: No objection, your Honor.

10 THE COURT: 611 is admitted. It may be published.

11 (611 admitted.)

12 By Mr. Pritikin:

13 Q Does this show the use of those same blocks?

14 A Yes, it does.

15 Q Now, in connection with the work of the JVT, did Motorola
16 make any contributions to the JVT relating to the subject
17 matter of the EIFRIG patent?

18 A Motorola never proposed the EIFRIG subject matter to the
19 JVT.

20 Q But this is -- this was used in H.264, those three blocks?

21 A Yes, it was.

22 Q And, again, is this limited to interlaced video?

23 A Yes, it is limited to interlaced video.

24 Q Now, let's turn quickly to the other two patents that are
25 not necessarily limited to interlaced video. Let's start

1 with Exhibit 270, the '419 patent.

2 A Yes.

3 Q Can you tell us at a high level what this claims?

4 A The '419 patent claims a method for performing motion
5 compensation on a block, but allows the choice of either
6 applying it to the entire block or to apply it to four
7 subblocks of that block independently.

8 Q When was the application for this patent originally filed?

9 A It was filed in October of 1991.

10 Q Has the '419 patent expired?

11 A Yes, it expired in October of last year.

12 Q So it has been expired for over a year at this point?

13 A That's right, I guess it has.

14 Q Did Motorola make any contributions to the JVT relating to
15 the subject matter of the '419 patent?

16 A No, they did not.

17 Q Now, is this a patent whose German counterpart was found
18 to be infringed by Microsoft?

19 A Yes, I understand it was.

20 Q Are you familiar with the German court decision?

21 A I have looked over the opinion.

22 Q And are you familiar with the German claim construction
23 and infringement ruling?

24 A Yes, I did read that.

25 Q Was the validity of the '419 patent considered in Germany?

1 A No, it was not. My understanding is that Microsoft was
2 forced to withdraw that for purposes of something called the
3 Orange Book process.

4 Q Were the claims of the German counterpart patent
5 interpreted broadly or narrowly in Germany?

6 A They were interpreted very broadly, covering a lot of
7 things that were very different from the disclosure of the
8 patent, including the H.264.

9 Q In your opinion, what are the implications of that broad
10 construction for the validity of the patent?

11 A It means that it covers a lot of other things too. The
12 general idea of choosing either to do motion compensation on
13 a block or subblocks was widely studied, widely proposed,
14 widely written about in the period of maybe four or five
15 years, at least that I know of, prior to 1991.

16 Q Now, do the U.S. claims -- You have looked at the claims
17 of the U.S. -- the expired U.S. patent. And do they contain
18 means plus function limitations?

19 A Yes, they do.

20 Q Have you analyzed the patent specification to see what
21 corresponding structure is disclosed?

22 A Yes, I have. And the structures are all hardware
23 structures.

24 Q And what have you concluded about whether a person of
25 ordinary skill in the art would have understood that to

1 contain a disclosure of software embodiments?

2 A In my understanding, a person of ordinary skill in the art
3 would have clearly understood that to disclose hardware, and
4 not any software. There is no evidence of algorithm
5 description.

6 Q And you said the date of this patent was 1991?

7 A That's right.

8 Q And how does that bear on your conclusion that a person of
9 skill in the art would have understood this as limited to
10 hardware?

11 A Particularly in 1991, one would not have looked over the
12 types of structures described and interpreted any specific --
13 any suggestion of an algorithm or any software.

14 Q What are the implications of that for Microsoft products?

15 A Well, to my knowledge, Microsoft does not have any
16 hardware structures or structure decoders at all related to
17 these.

18 Q Now, let's turn back to Exhibit 1550. I want to direct
19 your attention to the '419 patent. Can you tell us what
20 alternatives would have been available had the JVT not wanted
21 to use the '419 patent, assuming it is used?

22 A Well, for the '419 patent, I have isolated four documents
23 that describe -- that pre-date the '419 patent, that describe
24 similar methods for blocking up -- for offering choices of
25 either doing motion compensation on the block or subblocks.

1 And they are Exhibit 1477, Exhibit 633, Exhibit 462 and
2 Exhibit 632.

3 MR. PRITIKIN: Microsoft moves the admission of
4 Exhibits 1477, 462 and 632.

5 MR. ROWLAND: No objection to 1477. We do have an
6 objection, lack of foundation, for 462. Likewise, an
7 objection to 632, lack of foundation. These last two
8 exhibits, we just don't know what they are.

9 MR. PRITIKIN: Professor Orchard, can you explain
10 what the --

11 THE COURT: Counsel, I haven't ruled on the
12 objection.

13 MR. PRITIKIN: Oh, I was --

14 THE COURT: Counsel, would you lay some further
15 foundation for 462?

16 By Mr. Pritikin:

17 Q Professor Orchard, can you tell us what this document is,
18 what your understanding of it is?

19 A This is a study conducted in the development effort of
20 H.261, testing -- describing a method that would send motion
21 vectors either for the macroblock or for the four blocks
22 shown on the first page of the -- within the macroblock. And
23 this was done as part of the -- at an Oslo meeting of the
24 group working on the H.261 standard.

25 MR. PRITIKIN: Your Honor, I think there is a

1 sufficient basis for the document to be admitted.

2 THE COURT: All right.

3 MR. ROWLAND: Your Honor, counsel sought to admit
4 this as evidence of prior art. We still don't have
5 sufficient information that shows that it was published, or
6 that it was publicly available as prior art. The witness
7 hasn't established -- hasn't identified that he has knowledge
8 that this was -- met any requirement of prior art.

9 THE COURT: I am going to overrule that objection. I
10 think the document establishes the prior art aspect, or at
11 least if you wish to include it for that. The two exhibits
12 are admitted.

13 (1477, 632 & 462 admitted.)

14 By Mr. Pritikin:

15 Q I believe the final exhibit that you referred to was
16 Dr. Sullivan's thesis; is that correct, Dr. Orchard?

17 A That's correct.

18 Q And is that Exhibit 618?

19 A Yes, it is.

20 MR. PRITIKIN: I believe, your Honor, that is already
21 in evidence.

22 THE COURT: It is.

23 By Mr. Pritikin:

24 Q Now, in your opinion, would the use of the alternatives
25 that are disclosed in these degrade its performance?

1 A No.

2 Q Let's go to the last of the patents, the '968 patent,
3 Exhibit 283. And, again, at a high level, can you tell us
4 what that patent claims?

5 A This is the patent that describes a very specific way of
6 offering options of doing motion compensation. One can
7 either motion compensate an entire block, or indicate with a
8 code that the block should be broken up into subblocks, and
9 then send independent vectors for each of the subblocks and
10 code them in independent ways.

11 Q When did this patent -- When was it originally applied
12 for?

13 A In 1993.

14 Q And when does the '968 expire?

15 A It expires in March of next year.

16 Q Did Motorola submit any contributions to the JVT relating
17 to the subject matter of the '968 patent?

18 A No, they did not.

19 Q And is this also one of the patents whose German
20 counterpart was found to be infringed by Microsoft?

21 A Yes.

22 Q Was the validity of the '968 patent considered in Germany?

23 A No, it was not, for the same reason as the '419 patent.

24 Q And I will ask you again, did the German court interpret
25 the claims there broadly or narrowly?

1 A They interpreted them quite broadly, in my opinion.

2 Q And what are the implications of that for the validity of
3 the patent?

4 A The implication would be that there are many other things
5 that were done at the time, and prior to that time, that
6 would also be viewed as infringing on this patent.

7 Q Do the U.S. claims that were analyzed by Motorola and its
8 experts in this case contain means plus function limitations?

9 A Yes, they do.

10 Q And, again, have you analyzed the patent specification to
11 see what the corresponding structure disclosed?

12 A Yes, I have.

13 Q What have you concluded?

14 A That the structures are all hardware structures, and there
15 is nothing in there that would suggest to one of ordinary
16 skill in the art any software or any algorithm to be run on
17 the software.

18 Q And how does the timing, 1993, bear on your conclusions?

19 A At that time in particular, one of ordinary skill in the
20 art would be very clear that this was unrelated to any
21 software or algorithm.

22 Q And what are the implications of that for Microsoft
23 products?

24 A Microsoft doesn't -- to my knowledge does not have any
25 hardware decoders or decoding that resembles in any way that

1 which is described here.

2 Q Were there alternatives to the '968 patent that could have
3 been used by the JVT?

4 A Yes, there were.

5 Q Returning to Exhibit 1550, and looking at the entry for
6 the '968 patent, do these include the Ph.D. thesis of
7 Dr. Sullivan?

8 A Yes, it does.

9 Q That is Exhibit 618?

10 A Yes.

11 Q And you have also identified the Pury (phonetic) patent.
12 Can you tell us what that is?

13 A Yes. That would be the Pury paper, which describes a
14 similar type of structure for motion compensation.

15 Q That is Exhibit 632, which has already been admitted?

16 A That's right.

17 Q And is there another reference you found?

18 A Yes. By the time that this patent was filed, MPEG-2 was
19 already defined, and it incorporated a type of structure that
20 would also be interpreted as practicing this patent.

21 Q And that's Exhibit 617?

22 A That's Exhibit 617.

23 MR. PRITIKIN: Microsoft offers Exhibit 617.

24 MR. ROWLAND: No objection, your Honor.

25 THE COURT: 617 is admitted.

1 (617 admitted.)

2 By Mr. Pritikin:

3 Q Let's switch gears now, Professor Orchard. I want to talk
4 about the Microsoft patents. You told us that Microsoft has
5 patents that are essential to H.264 as well?

6 A Yes, that's true.

7 Q Approximately how many Microsoft U.S. patents have you
8 identified?

9 A 40.

10 Q Have these been deemed essential by any independent
11 evaluator?

12 A Yes. Thirty-six of them, to my understanding, have been
13 submitted to MPEG LA and classified as essential to H.264.

14 Q And have you analyzed the Microsoft patents?

15 A Yes, I have.

16 Q In your opinion, do they shed any light on the overall
17 importance of Motorola's H.264 patents to the standard?

18 A Well, they provide one reference point of what a company's
19 patent portfolio might look like related to H.264, the types
20 of technologies in H.264 that might cover the span and the
21 breadth of technologies.

22 Q Have you prepared a demonstrative categorizing Microsoft's
23 essential H.264 patents?

24 A Yes, I have. I have prepared, I think, three of them.

25 Q Let's look at Exhibit 4026. I would like to move through

1 this fairly quickly.

2 A Yes.

3 Q Can you tell us, generally, what is shown here?

4 A These are patents that make what I consider fundamental
5 advances to the core components of the H.264 algorithm.

6 Q And those are prediction --

7 A Those are patents that contribute to prediction and to
8 transform and quantization.

9 Q Could you read the exhibit numbers of the patents that you
10 believe make fundamental advances to prediction?

11 A Those that contribute to the prediction are Exhibit 890,
12 893, 924, 906, 840, 1411, 841, 816 and 817.

13 Q And, likewise, could you identify the patents that you
14 believe make fundamental advances to transform and
15 quantization?

16 A Those would be Exhibit 848, 856, 855, 857, 854 and 846.

17 Q Let's turn to Exhibit 4027. What have you shown here,
18 Professor Orchard?

19 A These are patents that I would consider to be making
20 contributions to the core components of the H.264 coding
21 algorithm. But they are contributions that add features to
22 them that are used by some, not used by others. They have
23 value to ranges of applications, but not perhaps to all of
24 them.

25 Q Again, could you go through the categories and identify

1 the patents?

2 A Okay. There is signaling category, which would be
3 Exhibits 796, 798, 800 and 842.

4 There is a deblocking category, which would be
5 Exhibit 847.

6 And there is an error resilience related to SP slices.
7 They are Exhibits 813, 815 and 814.

8 Q And let's go now to Exhibit 4028. What is this last
9 category of patents?

10 A These are patents that add advanced functionality to the
11 H.264 algorithm. So these are functionalities that -- many
12 of them are not directly related to the core components, but
13 they allow functionality that is very valuable for today's
14 internet applications of decoding, streaming video and things
15 like this.

16 Q And, again, would you take us through the categories and
17 identify the exhibits numbers?

18 A The first category is the hypothetical reference decoder,
19 which is fundamental to the way decoders are tested. And
20 that would be Exhibit 833 and 1669.

21 The second one would be time-coding information. And this
22 is the type of information that Gary Sullivan mentioned
23 earlier. And that would be Exhibits 818, 823, 824, 825, 822,
24 830 and 831.

25 The next category would be pan and scan. These are

1 functionality that allows coded information to be sent to
2 different size displays, handheld displays, HD TV displays,
3 all of them dealt with in a uniform way. And they would be
4 Exhibits 829, 828, 827.

5 Another category is related to random access points. And
6 that is Exhibit 870.

7 Another category subpoena is related to error resilience,
8 important, for example, for wireless video over wireless
9 channels. That would be Exhibits 869, 884 and 895.

10 And the last category is a patent related to the color
11 space. It allows for more efficient treatment of most
12 natural images and video. And that would be Exhibit 868.

13 Q Thank you, Professor Orchard. One last topic I want to
14 cover with you. We are almost there. I want to ask you
15 about the importance of Motorola's H.264 patents to
16 Microsoft's products. Are you familiar with the Xbox 360?

17 A Yes, I am.

18 Q How important do you consider the Motorola H.264 patents
19 to be for the Xbox 360?

20 A I consider them to be very unimportant.

21 Q Have you prepared a demonstrative showing the uses of the
22 Xbox 360?

23 A Yes, I have.

24 Q Let's put up Exhibit 4029. And you have listed various
25 activities that are done using the Xbox 360?

1 A I think these are the main activities, yes.

2 Q Could you explain the importance of the Motorola H.264
3 patents to each of these?

4 A The first most used -- The biggest use of the Xbox is to
5 play games. And while there is video in the games, that
6 video is never H.264 -- or H.264 is not used for that video.

7 A second use is to play multiplayer games via Xbox Live.
8 Again, Xbox Live does not use H.264 to encode any video in
9 those games.

10 The next one is to use Xbox Live to access video from
11 various sources. And while some of those sources do use
12 H.264, as well as VC-1, no interlace is supported by Xbox
13 Live. So none of that video is interlaced.

14 And finally, the Xbox is used, I understand, often to play
15 rented or purchased DVDs. That material is coded in MPEG-2
16 and does not use H.264.

17 Q Now, are you familiar with a survey that was done by a
18 Motorola expert by the name of R. Sukumar?

19 A Yes, I read through that survey.

20 Q Did R. Sukumar ask on-line survey participants whether
21 they viewed MBAFF video on the Xbox?

22 A That's what I understand he did in the survey, yes.

23 Q Based on your knowledge of the technology, do you believe
24 that an on-line survey participant could provide a reliable
25 answer to that question?

1 A I believe it would be a rare survey participant who would
2 know what interlaced video is, and an even rarer one that
3 would know what MBAFF, associated with that interlaced video,
4 would be. For that rare one that might know what MBAFF was,
5 almost assuredly they would be referring to MPEG-2 MBAFF,
6 because that's the vast majority of the MBAFF they might have
7 seen.

8 Q How easy or difficult would be it to figure out whether a
9 video on an Xbox uses MBAFF or even interlace?

10 A Very, very difficult. I don't think I could.

11 Q Even if a consumer watched interlaced video that used
12 MBAFF, would you know whether it is using the MPEG-2 version
13 or the H.264 version of it?

14 A No, they wouldn't be able to tell.

15 Q Let's turn to the Windows operating system that was
16 discussed by Motorola's experts. Are you familiar with
17 Windows 7?

18 A Yes, I am.

19 Q And are you familiar with the use of video compression in
20 the use of Windows 7?

21 A Yes, I am.

22 Q How important are the Motorola H.264 patents to the normal
23 use of Windows?

24 A I think they are very unimportant.

25 Q Have you prepared a demonstrative showing the sources of

1 video played using the Windows software?

2 A Yes, I have.

3 Q Could we put up Exhibit 4030? Can you explain what you
4 have shown here?

5 A What I have shown here are the most common ways one might
6 encounter video in a Windows 7 environment, probably ranked
7 by how common they are. Certainly the vast majority of video
8 that you would see would be by looking on web pages. That
9 video may be an H.264, but I was not able to find any such
10 interlaced video on such web pages, pages like YouTube, Hulu,
11 common places where one encounters video. None of them were
12 interlaced.

13 It is also true that you can play DVDs on a Windows 7
14 machine, but that is not H.264 encoded, that is MPEG-2
15 encoded.

16 It is possible to download video files and then play them
17 with a decoder made for your machine. And while that may be
18 H.264, it is very rare that it would be interlaced H.264.

19 Q Have you analyzed the five samples of supposed interlaced
20 video that Motorola and its experts say they have found?

21 A Yes, I have.

22 Q Could we put up Exhibit 4031? And have you prepared a
23 demonstrative summarizing your conclusions as to these
24 samples?

25 A Yes, I have.

1 Q And are the five examples shown here?

2 A Yes, those are the five examples on the left.

3 Q Can you explain what they were?

4 A The first one was a Katy Perry video. It is pirated video
5 from a British TV station on a Pirate Bay website. I believe
6 it is not relevant to law-abiding Microsoft customers or
7 users.

8 The second two, the video found on FindThatFile and the
9 JVT conformance videos are both test videos used by people,
10 in the first case a company and the second case a conformance
11 test, to see if the interlace handling facilities of
12 applications are working. The first one is two seconds long.
13 The second one, the JVT one, is one second long. I believe
14 they are not commercially relevant. I don't believe anyone
15 would look at these one or two second long videos.

16 The final two that were cited, I looked at them carefully
17 and determined that neither of them is interlaced. The first
18 one is the Olympics video. It is provided through YouTube.
19 YouTube does not support interlaced video, and therefore one
20 would not imagine it was interlaced. I looked at it
21 carefully and determined it was not interlaced, it is
22 progressive.

23 The second group were NASA videos that are available on a
24 NASA website. I determined they were also not -- they were
25 not H.264 and they were not interlaced.

1 Q Now, YouTube, is YouTube a widely used source of video on
2 the internet?

3 A I think it is a very widely used source. I think most
4 people have seen video over YouTube.

5 Q Does YouTube support interlaced video?

6 A No. YouTube has made the decision to not allow people to
7 send interlaced video. Users of YouTube are told if their
8 videos are interlaced and they want to post them, they need
9 to de-interlace first before posting them.

10 Q Would you turn to Exhibit 592? Can you tell us what this
11 is?

12 A These are instructions related to -- from the YouTube
13 website, related to how one would encode video for posting on
14 YouTube.

15 Q And what guidance does it provide as to interlaced video?

16 A It instructs you that the video codec there on the first
17 page supports progressive scan, no interlacing, and suggests
18 on the second page contents should be de-interlaced.

19 Q Do you have an understanding as to who operates and owns
20 YouTube?

21 A I believe Google owns YouTube.

22 Q And Google is the parent company of Motorola?

23 A That's right.

24 Q The fact that Google's YouTube doesn't support interlaced
25 video, does that tell you anything about the importance of

1 interlaced video today?

2 A I think it tells you that Google has decided it is worth
3 risking the possibility that some interlaced sources might
4 not be accommodated in exchange for avoiding the problems
5 associated with interlace.

6 Q And does it tell you anything about how common or rare the
7 use of interlaced video is?

8 A I think it suggests it is not very important, at least to
9 Google.

10 Q Can Windows encode using H.264 interlaced coding tools?

11 A No, it does not use the Windows -- The Windows encoder
12 does not use the interlace coding tools.

13 Q Now, there are a couple of other products mentioned,
14 Windows Phone 7, and phone 7.5. What are those?

15 A Those are other Windows products associated with phones
16 and operating systems for phones.

17 Q Does Windows Phone 7 software even include an H.264
18 decoder?

19 A No, it does not.

20 Q Could you look at Exhibit 4032? This is a potpourri of
21 other products mentioned by Motorola and its experts. Can
22 you explain to us briefly where and how H.264 might be
23 implicated here?

24 A Silverlight is a framework for dealing with multimedia
25 content, and it does not support interlaced video. The Zune

1 is a handheld device that does not support interlaced video.
2 Lync is a chatting environment that Microsoft supports, that
3 does not support interlaced video. Skype, I think most
4 people have used for teleconferencing, does not support
5 interlace video. Windows embedded is an operating system to
6 run on embedded hardware, and it does not support video, does
7 have not have a decoder.

8 MR. PRITIKIN: Your Honor, I forgot to move the
9 admission of 592. I would do so now.

10 MR. ROWLAND: No objection, your Honor.

11 THE COURT: 592 is admitted.

12 By Mr. Pritikin:

13 Q Professor Orchard, let's see if we can sum up. Based on
14 all of the analysis that you have done in this case, how
15 would you characterize the importance of the Motorola H.264
16 patents in implementing the H.264 standard?

17 A I would say that they are -- have very minor importance,
18 and getting smaller as interlace -- the importance of
19 interlace recedes.

20 I would say that if H.264 had at any point been faced with
21 the option of choosing between the technologies of the patent
22 and the best alternatives, that the choice would have been
23 very easy to choose the alternatives, and no losses would
24 have been incurred. I certainly believe that the patents are
25 very unimportant to Microsoft products, which don't support

1 mostly interlaced.

2 MR. PRITIKIN: Thank you, Professor Orchard. No
3 further questions.

4 THE COURT: Counsel, while you are handing out your
5 books, I will ask one question.

6 Professor, I have you down as saying there are 16
7 essential patents, and your graph says 17.

8 THE WITNESS: That graph, slide, demonstrative was
9 developed earlier. I believe there was one that was removed
10 that I think Motorola backed off on.

11 MR. PRITIKIN: I think it was the subject of one of
12 the earlier rulings, in fact, your Honor.

13 THE WITNESS: I was also confused.

14 CROSS-EXAMINATION

15 By Mr. Rowland:

16 Q Good afternoon, Professor.

17 A Good afternoon.

18 Q Microsoft markets its products around the world; is that
19 correct?

20 A I believe it does, yes.

21 Q And around the world television is a popular source of
22 entertainment?

23 A That's what I read, yes.

24 Q And the television industry has been providing video
25 content in an interlaced format for decades?

1 A That's true.

2 Q And the television industry still provides video content
3 in interlaced form?

4 A It provides some of its video content in interlaced form.

5 Q Many sources of digital television use H.264 to encode
6 video content?

7 A Yes, many are.

8 Q Sources of digital television that use H.264 include
9 broadcast TV?

10 A Sorry? The terrestrial broadcast?

11 Q Yes.

12 A In the United States it uses MPEG-2.

13 Q And outside of the United States?

14 A There are some places where H.264 has been adopted.

15 Q Sources of digital television that use H.264 includes
16 satellite TV?

17 A Yes, some satellite TV providers do use H.264.

18 Q And sources of digital television that use H.264 include
19 cable TV companies?

20 A Some cable TV companies adopted it, yes.

21 Q And the sources of digital television that use H.264 can
22 include interlaced video content in the programming they
23 provide?

24 A They generally do support interlaced content, yes.

25 Q And the sources of digital television that use H.264

1 coding can include interlaced content encoded using the MBAFF
2 feature of the H.264 standard?

3 A If such sources decide to send interlaced video, then,
4 yes, they have the option of using the interlaced coding
5 tools of the H.264 standard.

6 Q There was an example you mentioned in your direct
7 testimony about video, I think it was the Katy Perry video.
8 Do you recall that?

9 A That's right.

10 Q And I believe you analyzed that, and it was your opinion
11 it had been broadcast by British BBC One?

12 A I think -- I read that somewhere. I did not see that in
13 my analysis of the video. I do know that it came from a
14 Pirate Bay source. That's where I got it.

15 Q But you had investigated and opined that it had come from
16 British television?

17 A Yeah. I was told that, yes.

18 Q And you did take a look at it and confirmed that it
19 included MBAFF encoded video content?

20 A Yes, I did.

21 Q That is MBAFF as used in H.264 standard?

22 A That's right.

23 Q Now, recording broadcast TV shows for personal use is a
24 fairly common practice?

25 A I am not sure that I can comment on that. I don't know.

1 Q You don't know what people do with DVRs? Do you know what
2 a DVR is?

3 A Sure.

4 Q So you don't have an opinion one way or the other as to
5 whether people use their DVRs to record broadcast video
6 shows?

7 A You're right. I was thinking on a computer, doing it
8 myself. You're right, the DVR does do that, yeah.

9 Q Now, Microsoft -- You anticipated my next question.
10 Microsoft encourages its customers to record TV using Windows
11 Media Center; isn't that right?

12 A I'm not aware of that.

13 Q Let me show you Exhibit 2738. Let me know when you are
14 there.

15 A I'm there.

16 THE COURT: I'm not, counsel.

17 MR. ROWLAND: All right, your Honor.

18 THE COURT: All of that for one page? I'm there.

19 MR. ROWLAND: Thank you, your Honor.

20 By Mr. Rowland:

21 Q As you see, Exhibit 2738 is a printout from Microsoft
22 Windows website. It refers to Windows Media Center. Do you
23 see that?

24 A Yes, I do.

25 Q And there is a heading about -- well, actually, right

1 underneath the picture it says, "Watch, pause and record
2 HDTV." Do you see that?

3 A Yes, I do see that.

4 Q And it says, "With Windows Media Center --" This is
5 further down the page. Underneath the heading, "Watch and
6 record hi-def TV and movies with Windows Media Center plus
7 broadcast or cable TV, and with a TV tuner you can watch,
8 pause and record live TV, even HDTV." Do you see that?

9 A Yes, I do see that.

10 Q Do you understand that a function of Windows Media Center
11 is to record TV?

12 A I am not familiar with this product. All I can do is
13 interpret and perhaps speculate from what you are showing me
14 here. But that might be -- what you ask might be one
15 interpretation of the words here.

16 Q So you are not familiar with Windows Media Center; is that
17 correct?

18 A I don't use it. I don't have it.

19 Q And you didn't analyze it as part of your opinion?

20 A I analyzed various things that came up here, but I
21 never -- For example, on this, I don't know what tuner they
22 are talking about. I don't know who does the decoding. I
23 don't know if they are talking about encoding to record. I
24 imagine there is some encoding involved. No, I don't know
25 the details of that.

1 Q Are you familiar with the fact that Windows Media Center
2 allows user to send recorded TV shows or other video from
3 their PC to their Xbox?

4 A No, I was not aware of that, and I don't know how that is
5 done.

6 Q If you look on the same sheet in front of you, the bottom
7 of the paragraph we were just quoting from, which is in the
8 middle of the page -- no, I'm sorry, it is under the heading
9 "Watch what you want where you want." Do you see at the
10 bottom of that paragraph it says, "And if you have an Xbox
11 360 you can also send the recorded TV, video and photos on
12 your PC to your television." And that is a function you are
13 not familiar with; is that right?

14 A Yes, that is correct.

15 Q Were you aware that an Xbox can be set up as a Windows
16 Media Center extender, so the content can be streamed from a
17 computer from one room to other rooms in the house?

18 A No, I was not.

19 Q Now, Microsoft has partnered with various digital TV
20 providers around the world to allow the Xbox to receive
21 digital television programming from the internet?

22 A Excuse me? What's the question?

23 Q Has Microsoft -- it is correct that Microsoft has
24 partnered with various digital TV providers around the world
25 to allow the Xbox to receive television programming from the

1 internet?

2 A I am not aware of that being the case.

3 Q Let's take a look at Exhibit 2161.

4 MR. ROWLAND: Your Honor, I'm sorry. Motorola would
5 offer 2738.

6 THE COURT: Any objection?

7 MR. PRITIKIN: No objection.

8 THE COURT: It is admitted.

9 (2738 admitted.)

10 By Mr. Rowland:

11 Q Are you on Exhibit 2161?

12 A Yes, I am.

13 Q Do you see the heading? This is from Microsoft News
14 Center at the top. It says, "Xbox 360 teams up with
15 entertainment leaders to transform TV." Do you see that
16 heading?

17 A I do see that, yes.

18 Q If you turn to the next page, toward the bottom of the
19 page, the second to last paragraph, it says "These new TV and
20 video providers announce today, join our existing lineup of
21 great TV and entertainment partners already on Xbox 360:
22 AT&T, Netflix and Hulu plus in the U.S., Telus in Canada,
23 BskyB in the UK, Canal+ in France, Vodafone in Portugal,
24 Vimpelcom in Russia, and Foxtel in Australia." Do you see
25 that?

1 A I see that, yes.

2 Q Were you aware of those arrangements for providing TV on
3 the Xbox?

4 A Of those I only have been aware of the BskyB and the
5 Canal+.

6 Q You were not aware, for example, in the United States
7 Microsoft has partnered with AT&T to allow the Xbox to be
8 used as a set-top box for its digital TV service?

9 A I was aware of that, yes.

10 Q And that digital TV service is called U-verse?

11 A That's right.

12 Q Now, the U-verse service includes delivery of interlaced
13 content; is that right?

14 A I understand that there is some interlace on U-verse, yes.

15 Q And that interlace content, if received by the Xbox, would
16 be decoded by the H.264 decoder in the Xbox?

17 A I believe it would be, yes.

18 Q Consumers use camcorders to generate interlaced content
19 encoded in H.264, correct?

20 A Some older camcorders do put out interlaced content, yes.

21 Q And those put out interlaced content encoded in H.264?

22 A Yes, there are some of those that do put out H.264 encoded
23 content.

24 Q Consumers might want to save such H.264 interlaced content
25 on their computers and play it back?

1 A That could be true, yes.

2 Q And they might want to burn such H.264 interlaced content
3 to a DVD that they can play on their computer or Xbox?

4 A They might want to.

5 Q They might want to copy such H.264 interlaced content to a
6 flash drive so they can play the file on their computer or
7 Xbox?

8 A That could happen, yes.

9 Q And they might want to upload such H.264 interlaced
10 content to the internet, right?

11 A They might want to, yes.

12 Q And as you have pointed out to us today, one place they
13 might upload such interlaced content or desire to upload such
14 interlaced content is YouTube, right?

15 A When they -- if they came about wanting to do that, they
16 would be instructed they would need to de-interlace and
17 upload it as progressive content.

18 Q That's YouTube's rules. That's not the only way in which
19 a user could upload video to the internet, correct?

20 A Via YouTube?

21 Q I am saying other than YouTube.

22 A That's true.

23 Q I would like -- As long as we are on YouTube, can we go
24 back to Exhibit 592, which you had talked about in your
25 direct testimony.

1 A I'm there.

2 Q And you said that on this page it referred to converting
3 interlaced video to progressive video prior to uploading; is
4 that right?

5 A I believe it is on the top of the following page, yeah.

6 Q That's the discussion where it says, "Content at 1080i 60
7 should be de-interlaced, going from 60 interlaced fields per
8 second to 30 progressive frames per second before uploading."

9 A That's right.

10 Q So your understanding is the reference to 1080i 60 is a
11 reference to interlaced video?

12 A Yeah. The 1080i 60 expressed like that, yes, would be.

13 Q And so this suggests, does it not, that there is content
14 out there recorded by consumers who might want to upload that
15 content to the internet that has been recorded in interlaced
16 form?

17 A It suggests that while YouTube does not want to
18 accommodate that content, it certainly would not want to
19 leave someone with that content clueless as to what to do
20 with it. So instructions are provided, yes.

21 Q It wouldn't provide such instructions if they didn't
22 believe that such content existed, right?

23 A I think that's true.

24 MR. ROWLAND: Before we move on, I would like to move
25 for admission Exhibit 2161, which we had been discussing.

1 This was the Xbox 360 article?

2 MR. PRITIKIN: No objection.

3 THE COURT: It is admitted.

4 (2161 admitted.)

5 By Mr. Rowland:

6 Q Another way consumers can interact with interlaced content
7 as encoded in H.264 is through Blu-ray disks, correct?

8 A Are you asking if there is interlaced content on Blu-ray
9 disks?

10 Q Thank you. You asked the question better than I did.

11 A I think that's true, yes.

12 Q I would like to turn your attention to your assessment of
13 the patents in the MPEG LA pool. You did not analyze the
14 validity of any of the third-party patents included in the
15 MPEG LA, correct?

16 A Just so I understand clearly, third party to which --

17 Q Let me clarify. You had identified that there are patents
18 in the MPEG LA pool that are not assigned to Motorola or
19 Microsoft, correct?

20 A Yes.

21 Q Those patents, you did not analyze their validity?

22 A No, I did not.

23 Q And you did not analyze the claims of any of those
24 patents?

25 A No, I did not.

1 Q So you didn't analyze the extent to which any of those
2 patent claims, that is patents other than patents belonging
3 to Microsoft or Motorola, in the MPEG LA pool would be
4 directed to tools for improving the coding of interlaced
5 video, right?

6 A Some of them are related to field/frame coding, and other
7 tools related to interlaced video, if that's your question.

8 Q But you didn't analyze the claims that determine the
9 scope?

10 A No, I did not.

11 Q You also did not analyze the validity or claims of any
12 patents declared essential to H.264 by non-MPEG LA members?

13 A No, I did not.

14 Q You did an analysis of Motorola's patents, but that didn't
15 include a thorough invalidity analysis, correct?

16 A No. With the exception of the '596 patent, I really
17 haven't looked very thoroughly at invalidity.

18 Q The '596 patent was because you were involved in another
19 proceeding?

20 A That's right, in which the claim was found to be invalid.

21 Q There were claims in that patent found to be valid,
22 correct?

23 A That's right.

24 Q You also did not do a thorough analysis of whether
25 Microsoft's products infringed the Motorola patents, correct?

1 A I'm not sure what you mean by "thorough." It is my
2 opinion that the Microsoft products don't practice -- do not
3 have hardware that would infringe the means plus function
4 claims of two of the patents.

5 Q In general, you didn't do a thorough infringement analysis
6 of the Motorola patents?

7 A I think I looked at those patents with sufficient
8 thoroughness to support that opinion.

9 Q You had your deposition taken in connection with this
10 case?

11 A Yes, I did.

12 Q I believe you should have at the back of your binder a
13 copy of your deposition transcript. The blue binder. In
14 your deposition at Page 159 you stated, "In my reports I've
15 done an analysis of the value of all these patents with
16 respect to H.264, and that analysis, I don't think, is
17 equivalent to a thorough invalidity or infringement
18 analysis." You gave that testimony in your deposition?

19 A And I think that would -- I would still stand by that
20 characterization of my overall activities in this case
21 pertaining to all of the patents. That shouldn't preclude
22 the fact that a particular opinion were not thorough -- was
23 possibly thorough.

24 Q Is it not true that you gave this answer during your
25 deposition?

1 A Yes, I did.

2 Q You did not conduct any tests to determine the value of
3 Motorola's patents, correct?

4 A I'm not sure what you mean by "test." Can you be more
5 specific?

6 Q Sure. You didn't run a test, for example, of any coding
7 or decoding functionality, including a feature claim to be
8 covered by Motorola's patents to determine its performance?

9 A Okay. No, I did not.

10 Q And you didn't run any similar type tests to compare the
11 performance benefits provided by the inventions in Motorola's
12 patents relative to the performance of any of the prior art
13 or alternatives that you discussed in your testimony?

14 A In some cases I draw on tests that were done. But I did
15 not perform those tests, no.

16 Q Now, let's start with a few questions directed to specific
17 Motorola essential patents that you have discussed in your
18 testimony.

19 THE COURT: Counsel, you have about three minutes,
20 and then I will take some time to handle administrative
21 matters.

22 MR. ROWLAND: Your Honor, rather than going into a
23 new topic, it is probably a good time to stop.

24 THE COURT: Counsel, the matter that is next up on
25 the calendar is a criminal sentencing. So we can clear a

1 little bit of space on that bench. If you want to just push
2 stuff to the front, that's fine.

3 I will see you all tomorrow at 9:00 a.m. Our schedule
4 tomorrow will be 9:00 to noon, and 1:30 to 4:00. The
5 schedule for the rest of the week, I can now confirm for the
6 rest of the trial, will be Thursday, 9:00 to noon and 1:30 to
7 4:00; Friday 9:00 to noon and 1:30 to 4:30, and Monday, and
8 this is the change, 9:00 to noon and 1:00 to 4:30 -- excuse
9 me, until 4:00 on Monday. On Tuesday, 9:00 to noon and 1:00
10 to 4:00 p.m.

11 I originally allocated 18 hours to each side on this
12 matter, less time I spent reviewing the depositions. You are
13 going to get through the end of Tuesday with 15 hours and 30
14 minutes. It has actually taken me about ten or 12 hours to
15 do the deposition, but I can accommodate you on the trial
16 calendar. So 15 hours and 30 minutes.

17 And if my timekeeping is accurate, today Microsoft used
18 two hours and 45 minutes -- excuse me, two hours and 25
19 minutes, and Motorola used two hours and 20 minutes, which
20 against that 15-hour 30 minute limit leaves Microsoft with
21 nine hours and 30 minutes, and Motorola with 11 hours and 15
22 minutes, which is about on pace for presentation of how long
23 the presenting party takes more to start with.

24 I have as witnesses tomorrow -- I understand we are
25 losing Dr. Orchard. So we will have Del Castillo, Gibson,

1 and then who?

2 MR. PRITIKIN: After that it will be Professor Simcoe
3 and then Dr. Lynde.

4 THE COURT: All right.

5 MR. PRITIKIN: Your Honor, one other housekeeping
6 matter. There were various exhibits referred to in the
7 depositions submitted by the parties. I suspect both sides
8 are going to want to offer those into evidence. How would
9 you like us to do that?

10 THE COURT: If they weren't done during the
11 witness --

12 MR. PRITIKIN: Probably documents or exhibits that
13 were referred in the course of the testimony and I thought
14 had been provided to the court.

15 THE COURT: If you remember, I told you it needed
16 some witness identification. If it was done during the
17 witness, then I would have expected the exhibit to be moved
18 for admission at that time. Are there ones out there that
19 has not been done for?

20 MR. PRITIKIN: I was talking about the depositions,
21 your Honor. I'm sorry.

22 THE COURT: You will need to move to publish, is the
23 way that is done in this district. And then they become a
24 part of the court record.

25 MR. PRITIKIN: That's fine.

1 THE COURT: Mr. Jenner.

2 MR. JENNER: Your Honor, we have no questions on our
3 side of the table this afternoon.

4 THE COURT: All right. I will see you all tomorrow
5 morning. Thank you, counsel. We will be in recess.

6 MR. JENNER: Your Honor, I have one question I should
7 ask. That is just to get clarification on what your Honor's
8 rule is regarding witnesses who are carried over on
9 testimony. Are witnesses allowed to or precluded from
10 discussing the case with the party?

11 THE COURT: I would expect them not to discuss the
12 case.

13 MR. JENNER: Thank you.

14 THE COURT: Thank you, counsel.

15 (Adjourned for the day.)
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C E R T I F I C A T E

we, Debbie K. Zurn and Barry Fanning, Court Reporters for the United States District Court in the Western District of Washington at Seattle, do hereby certify that we were present in court during the foregoing matter and reported said proceedings stenographically.

We further certify that thereafter, we have caused said stenographic notes to be transcribed under our direction and that the foregoing pages are a true and accurate transcription to the best of our ability.

Dated this 18th day of December, 2012.

/s/ Debbie Zurn, Barry Fanning

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